RESERVES GROW 33% TO 2MOZ AT A COST OF JUST A$50/OZ

Resources up 350,000oz to 9.25Moz with four recent discoveries yet to be included in the estimate

NORTHERN STAR RESOURCES LIMITED

ASX ANNOUNCEMENT
28 July 2016

Australian Securities Exchange Code: NST

Board of Directors

Mr Chris Rowe
Non-Executive Chairman

Mr Bill Beament
Managing Director

Mr Peter O'Connor
Non-Executive Director

Mr John Fitzgerald
Non-Executive Director

Ms Liza Carpene
Company Secretary

Issued Capital

Shares 600M
Options 3.2M
Current Share Price A$4.71
Market Capitalisation A$2.8 Billion
Cash/Bullion and Investments 30 June 2016 - A$326 million

Level 1, 388 Hay Street
Subiaco WA 6008
T +6 8 6188 2100
F +6 8 6188 2111
E info@nsrltd.com
www.nsrltd.com

ABN: 43 092 832 892

KEY POINTS

- **Northern Star's highly successful exploration strategy has delivered a 33% increase (500,000oz) in Reserves to 2.0Moz after mining 611,000oz in FY16**
- **Total Resources increased by 350,000oz to 9.25Moz, including an increase in Measured and Indicated Resources of 520,000oz to 4.9Moz**
- **Reserves added organically at a cost of A$50/oz – equal to ~10% of current market acquisition prices**
- **Five discoveries made in past year but only one included in latest Resource estimate due to 30 June cut-off date**
- **Significant Reserve increases at major mining centres:**
  - **Jundee up 21% to 720,000oz**
  - **Kanowna up 58% to 266,000oz**
  - **Millennium (100% Kundana) maiden Reserve of 205,000oz**
  - **Hermes (Plutonic) maiden Reserve of 101,000oz**
- **Significant Resource estimates at a number of centres:**
  - **Kanowna up 20% to 1.4Moz**
  - **Raleigh (Kundana 50% JV) up 33% to 122,000oz at 42.2gpt**
  - **Hermes up 40% to 314,000oz (Plutonic)**
  - **Barkers (100% Kundana) Maiden Resource 137,000oz at 23gpt**
- **FY17 exploration spend of A$62M to generate future mines, grow production and to follow up significant success of FY16**

Northern Star Resources Limited (ASX: NST) is pleased to advise that its strategy to grow production to 700,000 ounces a year in 2018 is well on track with a 33% increase in Reserves to two million ounces.

Resources increased by 350,000oz to 9.25 million ounces. Importantly, the new Resource estimate contains a 12% increase in the Measured and Indicated category, taking that total to 4.9 million ounces.

The increases come despite Northern Star mining 611,000 ounces since the previous estimate was calculated a year ago.

The additional Reserves have been delivered at a cost of just A$50 per ounce, which is a remarkably low figure given global transaction multiples equated to ~A$500 per reserve ounce over the past 12 months.

These revised estimates also include just one of the five discoveries made by Northern Star over the past year. Further work is now underway with the goal of bringing the other four discoveries into the JORC estimate.

The substantial inventory growth reflects the significant success of Northern Star's exploration strategy and shows that the Company is meeting the objectives of increasing its mine lives and supporting future production growth.

Much of the increased inventory is at the Jundee and Kalgoorlie operations, though Northern Star has also replaced the ounces produced at Paulsens and Plutonic and improved the confidence of the Resource at the Central Tanami Project during the year.

Northern Star Managing Director Bill Beament said the success of the Company's organic growth strategy was central to its strong financial returns.

"The fact that we are growing Reserves for A$50 per ounce, with a very low level of capital intensity associated to those ounces will further strengthen our ability to maintain superior rates of return," Mr Beament said.

"This discovery cost is the foundation of our outstanding return on invested capital, which was 28% in the past financial year.

"By combining this cost with our tight production costs, we maximise margins, cashflow and overall financial returns.

"At the same time, our Resource base of 9.25 million ounces shows we have a substantial inventory to underpin our mine lives and future production rates."

At Jundee, where total Reserves increased by 21% to 720,000 ounces, further drilling has discovered high-grade mineralisation in a number of areas that have not yet been included in this Resource/Reserve update due to time constraints (*Refer to ASX announcement 30 June 2016*).

Mineral Resource and Reserve Summary

Group Mineral Resource Estimate is 83 million tonnes at 3.5gpt Au for 9.25 million ounces.

Group Mineral Reserve Estimate is 13.1 million tonnes at 4.7gpt Au for 2.0 million ounces.

These figures, which are estimated to 30 June 2016, represent JORC 2012 combined Resource for the five assets owned by Northern Star.

Yours faithfully

Bill Beament

BILL BEAMENT
Managing Director
Northern Star Resources Limited

Investor Enquiries:

Luke Gleeson, Investor Relations, Northern Star Resources Limited
T: +61 8 6188 2103
E: lgleeson@nsrltd.com

Competent Persons Statements

The information in this announcement that relates to data quality, geological interpretations and Mineral Resource estimations for the Company's Paulsens, Ashburton, Jundee and Plutonic Project areas is based on information compiled by Brook Ekers (Member Australian Institute of Geoscientists), who is a full-time employee of Northern Star Resources Limited. Mr. Ekers has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" for the Group reporting. Mr. Ekers consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to exploration results, data quality, geological interpretations and Mineral Resource estimations for the Company's Kanowna, EKJV, Kundana and Carbine Project areas is based on information compiled by Nick Jolly and fairly represents this information. Mr. Jolly is a Member of the Australian Institute of Mining and Metallurgy who is a full-time employee of Northern Star Resources Limited who has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Jolly consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to Ore Reserve estimations for the Company's Project areas is based on information compiled by Jeff Brown and fairly represents this information. Mr. Brown is a Member of the Australian Institute of Mining and Metallurgy who is a full-time employee of Northern Star Resources Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Brown consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to the Central Tanami Gold Project is extracted from the Tanami Gold NL ASX announcement entitled "Quarterly Report for the Period Ending 31 March 2014" released on 1 May 2014 and is available to view on www.tanami.com.au.

The information in this announcement that relates to mineral resource estimations, data quality, geological interpretations and potential for eventual economic extraction for the Groundrush deposit at the is Central Tanami Gold Project based on information compiled by Brook Ekers (Member Australian Institute of Geoscientists), who is a full-time employee of Northern Star Resources Limited. Mr. Ekers has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" for the Group reporting. Mr. Ekers consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The Company confirms that it is not aware of any further new information or data that materially affects the information included in the original market announcement entitled "Quarterly Report for the Period Ending 31 March 2014" released on 1 May 2014 and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. To the extent disclosed above, the Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

Forward Looking Statements

Northern Star Resources Limited has prepared this announcement based on information available to it. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this announcement. To the maximum extent permitted by law, none of Northern Star Resources Limited, its directors, employees or agents, advisers, nor any other person accepts any liability, including, without limitation, any liability arising from fault or negligence on the part of any of them or any other person, for any loss arising from the use of this announcement or its contents or otherwise arising in connection with it.

This announcement is not an offer, invitation, solicitation or other recommendation with respect to the subscription for, purchase or sale of any security, and neither this announcement nor anything in it shall form the basis of any contract or commitment whatsoever. This announcement may contain forward looking statements that are subject to risk factors associated with gold exploration, mining and production businesses. It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including but not limited to price fluctuations, actual demand, currency fluctuations, drilling and production results, Reserve estimations, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory changes, economic and financial market conditions in various countries and regions, political risks, project delay or advancement, approvals and cost estimates.

NORTHERN STAR RESOURCES LIMITED

MINERAL RESOURCES STATEMENT FOR YEAR ENDED 30 JUNE 2016

MINERAL RESOURCES As at 30 June 2016 Based on attributable ounces Au	MEASURED Tonnes (000's)	MEASURED Grade (gpt)	MEASURED Ounces (000's)	INDICATED Tonnes (000's)	INDICATED Grade (gpt)	INDICATED Ounces (000's)	INFERRED Tonnes (000's)	INFERRED Grade (gpt)	INFERRED Ounces (000's)	TOTAL RESOURCES Tonnes (000's)	TOTAL RESOURCES Grade (gpt)	TOTAL RESOURCES Ounces (000's)	Competent Person
PAULSENS GOLD PROJECT													
Surface							634	2.0	41	763	2.2	55	3
Mt Clement (20%)							226	1.8	13	226	1.8	13	10
Underground	425	9.6	131	265	9.7	83	120	9.6	37	810	9.6	251	1
Stockpiles	133	1.8	8							133	1.8	8	1
Gold in Circuit			1									1	
Subtotal Paulsens	558	7.8	140	265	9.7	83	980	2.9	91	1,932	5.3	328	
ASHBURTON GOLD PROJECT													
Surface				7,104	2.4	546	14,227	2.5	1,122	21,331	2.4	1,668	2,3
Subtotal Ashburton				7,104	2.4	546	14,227	2.5	1,122	21,331	2.4	1,668	
PLUTONIC GOLD PROJECT													
Surface				3,686	2.2	265	613	2.5	49	4,300	2.3	314	5
Underground	1,010	5.8	189	2,611	5.3	446	5,230	4.4	748	8,852	4.9	1,384	4
Stockpiles	6	5.5	1	496	0.6	10				502	0.7	11	4
Gold in Circuit			8									8	
Subtotal Plutonic	1,016	6.1	199	6,793	3.3	721	5,844	4.2	797	13,653	3.9	1,717	
KALGOORLIE GOLD PROJECT													
Kanowna													
Surface							1,288	1.9	80	1,288	1.9	80	7
Underground	1,903	4.1	254	5,163	4.1	684	3,256	3.9	404	10,322	4.0	1,342	6
Stockpiles	72	3.2	7	798	0.9	24				870	1.1	31	6
Gold in Circuit			8									8	
Subtotal Kanowna Belle	1,975	4.2	269	5,961	3.7	708	4,544	3.3	484	12,480	3.6	1,461	
Kundana													
Surface							721	2.1	48	721	2.1	48	8
Underground				1,087	6.8	237	2,183	8.3	584	3,269	7.8	822	7
Subtotal Kundana				1,087	6.8	237	2,904	6.8	633	3,991	6.8	870	
East Kundana Joint Venture (EKJV)													
Surface				148	4.8	23	201	1.6	10	349	2.9	33	8
Underground	160	24.7	127	1,539	10.7	529	634	11.7	239	2,334	11.9	895	7
Stockpiles	57	7.7	14							57	7.7	14	6
Subtotal EKJV	218	20.2	141	1,687	10.2	552	836	9.3	249	2,740	10.7	942	
Carbine													
Surface				190	0.8	5	7,044	1.4	312	7,234	1.4	317	8
Total Kalgoorlie	2,193	5.8	411	8,735	5.3	1,497	15,328	3.4	1,678	26,445	4.2	3,591	
JUNDEE GOLD PROJECT													
Underground	893	8.5	244	2,077	6.5	432	715	5.6	129	3,685	6.8	806	9
Open Pit				3,626	1.6	188	4,001	1.7	220	7,626	1.7	408	9
Stockpiles	1,036	1.23	41							1,036	1.2	41	9
Gold in Circuit			3									3	
Subtotal Jundee	1,929	4.6	288	5,703	3.4	620	4,715	2.3	349	12,347	3.2	1,257	
CENTRAL TANAMI PROJECT													
CTP (25%)	1,564	2.9	145	2,769	2.8	250	3,026	2.9	283	7,359	2.9	678	2,11
Stockpiles (25%)	350	0.7	8							350	0.7	8	12
Subtotal CTP	1,914	2.5	153	2,769		250	3,026		283	7,709	2.8	686	
TOTAL RESOURCES	**7,609**	**4.9**	**1,190**	**31,369**	**3.7**	**3,717**	**44,121**	**3.0**	**4,321**	**83,418**	**3.4**	**9,246**	

Note :

1. Mineral Resources are inclusive of Reserves
2. Mineral Resources are reported at various gold price guidelines (a. AUD$1,700/oz gold - Paulsens, Plutonic, Kanowna, Kundana, Jundee, and b. AUD$1,850 /oz gold -Ashburton)
3. Rounding may result in apparent summation differences between tonnes, grade and contained metal content
4. Numbers are 100% NST attributable

Competent Persons

1. Lauren Elliott. 2. Graeme Bland. 3 Brook Ekers. 4. Luke Barbetti. 5. Heath Anderson. 6. Darren Hurst. 7. Alan Pedersen. 8. Dena Omari. 9. Penelope Littlewood. 10. Artemis ASX release 2011. 11. Tanami Gold 2014 Annual Report

NORTHERN STAR RESOURCES LIMITED

ORE RESERVES STATEMENT FOR YEAR ENDED 30 JUNE 2016

ORE RESERVES As at 30 June 2016 Based on attributable ounces Au	PROVED Tonnes (000's)	PROVED Grade (gpt)	PROVED Ounces (000's)	PROBABLE Tonnes (000's)	PROBABLE Grade (gpt)	PROBABLE Ounces (000's)	TOTAL RESERVES Tonnes (000's)	TOTAL RESERVES Grade (gpt)	TOTAL RESERVES Ounces (000's)	Competent Person
PAULSENS GOLD PROJECT										
Underground	80	10.9	28	110	7.3	26	190	8.8	54	1
Stockpiles	133	1.8	8				133	1.8	8	1
Gold in Circuit			1						1	
Subtotal Paulsens	213	5.4	37	110	7.3	26	323	6.1	63	
ASHBURTON GOLD PROJECT										
Surface	248	3.6	29	160	4.1	21	408	3.8	50	2
Subtotal Ashburton	248	3.6	29	160	4.1	21	408	3.8	50	
PLUTONIC GOLD PROJECT										
Surface				1,565	2.0	101	1,565	2.0	101	5
Underground	153	4.8	24	522	4.4	74	674	4.5	98	3
Stockpiles	6	4.2	1	496	0.6	10	502	0.6	10	3
Gold in Circuit			8						8	
Subtotal Plutonic	158	6.4	33	2,583	2.2	185	2,741	2.5	218	
KALGOORLIE GOLD PROJECT										
Kanowna										
Kanowna Belle Underground	521	4.5	76	1,001	4.7	151	1,522	4.6	227	6
Stockpiles	72	3.2	7	798	1	24	870	1.1	31	7
Gold in Circuit			8						8	
Subtotal Kanowna Belle	592	4.8	91	1,799	3.0	175	2,391	3.5	266	
Kundana										
Underground	12	6.2	2	1,371	4.7	205	1,383	4.7	208	8,10
Subtotal Kundana				1,371	4.7	205	1,383	4.7	208	
East Kundana Joint Venture (EKJV)										
Surface										
Hornet (51%)				69	5.8	13	69	5.8	13	10
Underground										
Raleigh (50%)	95	12.9	40	47	9.9	15	143	11.9	55	9,11
Pegasus-Rubicon-Hornet (51%)	375	8.7	105	1,173	6.7	251	1,548	7.2	356	9,11
Stockpiles	57	7.7	14				57	7.7	14	7
Subtotal EKJV	527	9.4	159	1,289	6.7	279	1,816	7.5	438	
Total Kalgoorlie	1,120	7.0	250	4,459	4.6	659	5,591	5.1	912	
JUNDEE GOLD PROJECT										
Underground	893	8.5	244	2,077	6.5	432	2,970	7.1	676	12
Stockpiles	1,066	1.2	41				1,066	1.2	41	12
Gold in Circuit			3						3	
Subtotal Jundee	1,958	4.6	288	2,077	6.5	432	4,035	5.5	720	
TOTAL RESERVES	**3,697**	**5.4**	**637**	**9,389**	**4.4**	**1,323**	**13,098**	**4.7**	**1,962**	

Note :

1. Mineral Reserves are reported at the following gold prices of AUD $1,500/oz gold, except Ashburton at AUD$1,600/oz gold
2. Tonnages include allowances for losses resulting from mining methods with tonnages rounded to the nearest 1,000 tonnes
3. Ounces are estimates of metal contained in the Mineral Reserve and do not include allowances for processing losses.
4. Numbers are 100 % NST attributable

Competent Persons

1. Tim McCambridge. 2. Shane McLeay. 3 Tony Malavisi. 4. Brad Valiukas. 5. Craig Man. 6. Robert Smith. 7. Darren Hurst. 8. Stasi Capsanis. 9. Bryn Jones.
10. Tristan Sommerfield. 11. Craig Newton. 12. William Stirling.

DRILLING RESULTS

VELVET SIGNIFICANT INTERSECTIONS - Exploration											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (Mine Grid)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
KDU3339	19453	50115	9552	3	269	285.1	264.0	266.0	2.0	14.8	1.4
KDU3339	19453	50115	9552	3	269	285.1	275.4	279.0	3.6	4.7	2.5
KDU3366	19453	50116	9552	-2	272	390.0	303.0	311.5	8.5	2.1	5.0
KDU3366	19453	50116	9552	-2	272	390.0	315.0	323.0	8.0	1.5	4.8
KDU3366	19453	50116	9552	-2	272	390.0	324.7	331.0	6.3	5.5	3.7
KDU3366	19453	50116	9552	-2	272	390.0	336.7	339.0	2.3	3.7	1.4
KDU3397	19437	50122	9552	11	281	476.8	308.1	356.0	47.9	83.1	30.3
KDU3397	Including					476.8	336.3	356.0	19.7	194.1	12.5
KDU3397		Including				476.8	345.5	349.4	3.9	17.5	2.5
KDU3397		Including				476.8	351.0	355.0	4.0	922.9	2.5
KDU3397			Including			476.8	353.0	353.3	0.3	11000.0	0.2
KDU3397	19437	50122	9552	11	281	476.8	367.0	371.0	4.0	5.1	2.5
KDU3421	19889	49864	10053	-15	295	980.1	858.9	860.0	1.1	3.7	0.6
KDU3421	19889	49864	10053	-15	295	980.1	861.4	863.0	1.6	3.4	0.8
KDU3421	19889	49864	10053	-15	295	980.1	944.0	945.1	1.1	1.5	0.6

VELVET SIGNIFICANT INTERSECTIONS – Resource Definition											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (Mine Grid)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
KDU3402	19438	50123	9552	-18	251	368.9	239.7	243.7	4.0	8.7	3.2
KDU3402	19438	50123	9552	-18	251	368.9	246.8	253.3	6.5	1.6	5.2
KDU3402	19438	50123	9552	-18	251	368.9	292.1	295.4	3.2	2.3	2.6
KDU3402	19438	50123	9552	-18	251	368.9	329.8	331.3	1.5	3.3	1.2
KDU3409	19437	50122	9551	-18	264	387.2	317.0	321.5	4.5	2.8	3.0
KDU3410	19437	50122	9551	-14	265	381.2	288.4	290.0	1.6	2.5	1.1
KDU3410	19437	50122	9551	-14	265	381.2	296.0	306.9	10.9	13.6	7.3
KDU3410	Including						297.8	303.0	5.2	26.3	3.5
KDU3410	19437	50122	9551	-14	265	381.2	324.8	326.0	1.2	3.5	0.8
KDU3411	19370	50253	9555	7	251	336.2	254.3	263.5	9.2	1.5	8.2
KDU3412	19370	50253	9555	8	258	359.2	275.3	279.9	4.6	2.1	3.8
KDU3412	19370	50253	9555	8	258	359.2	283.0	288.0	5.0	2.8	4.1
KDU3412	19370	50253	9555	8	258	359.2	291.0	294.0	3.0	3.3	2.5
KDU3412	19370	50253	9555	8	258	359.2	298.0	300.0	2.0	9.7	1.6
KDU3413	19370	50253	9556	12	251	339.6	248.9	281.0	32.2	8.9	28.6
KDU3413	Including					339.6	248.9	255.2	6.3	5.7	5.6
KDU3413	Including					339.6	261.5	262.7	1.2	16.6	1.1
KDU3413	Including					339.6	267.0	281.0	14.0	15.7	12.4
KDU3413		Including				339.6	269.4	275.6	6.2	27.6	5.5
KDU3413		Including				339.6	277.6	281.0	3.4	9.1	3.0
KDU3414	19360	50124	9554	-2	254	369.4	142.7	146.2	3.5	4.4	2.9
KDU3414	19360	50124	9554	-2	254	369.4	148.0	148.6	0.6	2.7	0.5
KDU3414	19360	50124	9554	-2	254	369.4	163.8	166.0	2.3	4.2	1.9
KDU3414	19360	50124	9554	-2	254	369.4	168.0	175.9	7.8	1.5	6.6
KDU3417	19370	50253	9556	12	258	363.4	282.0	283.0	1.0	7.6	0.8
KDU3417	19370	50253	9556	12	258	363.4	298.0	300.0	2.0	6.8	1.6
KDU3418	19370	50253	9555	10	248	325.1	241.9	258.0	16.1	5.1	14.5
KDU3418	Including					325.1	241.9	243.9	2.0	17.0	1.8
KDU3418	Including					325.1	251.0	258.0	7.0	6.2	6.3
KDU3418	19370	50253	9555	10	248	325.1	276.8	280.2	3.4	1.9	3.1
KDU3418	19370	50253	9555	10	248	325.1	286.9	296.0	9.1	1.3	8.1
KDU3418	19370	50253	9555	10	248	325.1	305.4	306.7	1.3	22.8	1.2
KDU3420	19370	50253	9555	2	255	351.8	273.6	282.0	8.4	1.3	7.3
KDU3422	19370	50253	9555	-2	254	357.1	278.3	282.0	3.7	2.2	3.1
KDU3422	19370	50253	9555	-2	254	357.1	284.3	292.8	8.4	1.5	7.1
KDU3423	19422	50077	9552	-22	250	276.3	199.6	200.6	1.0	23.2	0.8
KDU3423	19422	50077	9552	-22	250	276.3	203.6	210.1	6.5	5.3	5.0
KDU3423	19422	50077	9552	-22	250	276.3	214.6	217.1	2.5	2.4	1.9
KDU3423	19422	50077	9552	-22	250	276.3	240.8	252.0	11.2	2.0	8.7
KDU3424	19422	50077	9552	-27	253	297.1	225.4	227.0	1.6	2.9	1.1
KDU3424	19422	50077	9552	-27	253	297.1	231.1	239.6	8.5	2.1	5.8
KDU3425	19422	50077	9552	-26	248	288.3	208.6	216.0	7.4	8.4	5.1
KDU3425	19422	50077	9552	-26	248	288.3	210.9	215.0	4.1	14.0	2.8
KDU3425	19422	50077	9552	-26	248	288.3	254.9	261.4	6.5	4.4	4.4
KDU3426A	19422	50078	9552	-34	246	318.2	238.8	241.5	2.7	4.0	1.9
KDU3426A	19422	50078	9552	-34	246	318.2	300.4	301.7	1.3	2.7	0.9
KDU3427	19422	50078	9552	-32	239	301.3	210.4	216.6	6.2	1.8	4.5
KDU3430	19288	50128	9558	30	198	148.4	81.0	83.5	2.5	4.1	2.0
KDU3430	19288	50128	9558	30	198	148.4	103.0	107.1	4.1	8.5	3.3
KDU3431	19288	50128	9558	31	188	168.1	85.0	90.0	5.0	1.6	3.5

VELVET SIGNIFICANT INTERSECTIONS – Resource Definition											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (Mine Grid)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
KDU3432	19288	50128	9557	19	199	158.6	84.6	85.3	0.8	1.9	0.7
KDU3432	19288	50128	9557	19	199	158.6	122.3	124.0	1.8	2.3	1.5
KDU3432	19288	50128	9557	19	199	158.6	129.0	130.4	1.4	2.0	1.2
KDU3433	19287	50129	9557	20	188	155.8			NSI		
KDU3434	19289	50128	9557	23	180	170.8	80.0	82.0	2.0	2.0	1.3
KDU3435	19289	50128	9557	23	171	187.1	117.3	124.0	6.7	4.0	3.4
KDU3437	19288	50128	9556	5	187	166.4	161.9	162.5	0.6	2.3	0.4
KDU3443A	19370	50253	9556	15	250	333.0	256.0	257.0	1.0	3.5	0.9
KDU3443A	19370	50253	9556	15	250	333.0	275.3	277.3	1.9	5.1	1.8
KDU3443A	19370	50253	9556	15	250	333.0	291.0	292.0	1.0	4.3	0.9
KDU3444	19370	50253	9556	13	246	369.0	235.8	238.8	3.0	1.8	2.8
KDU3444	19370	50253	9556	13	246	369.0	273.4	274.6	1.2	5.3	1.0
KDU3444	19370	50253	9556	13	246	369.0	289.4	293.9	4.5	2.2	4.2
KDU3444	19370	50253	9556	13	246	369.0	304.7	305.0	0.3	28.2	0.2
KDU3454	19422	50077	9553	17	266	239.1	150.0	152.0	2.0	8.3	1.9
KDU3454	19422	50077	9553	17	266	239.1	170.0	177.3	7.3	13.9	7.0
KDU3454	Including					239.1	170.0	173.2	3.2	19.4	3.0
KDU3454	Including					239.1	174.9	177.3	2.4	12.8	2.3
KDU3454	19422	50077	9553	17	266	239.1	179.0	184.0	5.0	1.9	4.7
KDU3454	19422	50077	9553	17	266	239.1	201.5	207.0	5.5	6.1	5.2
KDU3454	19422	50077	9553	17	266	239.1	233.5	239.1	5.5	2.1	5.2
KDU3455	19422	50076	9553	12	264	239.1	172.8	181.0	8.2	9.5	8.1
KDU3456	19422	50077	9553	5	261	248.1			NSI		
KDU3457	19422	50077	9553	-3	259	246.5			NSI		
KDU3458	19422	50077	9553	-7	258	252.5	183.0	184.3	1.3	7.2	1.0
KDU3459	19422	50077	9552	-12	259	274.1	189.0	191.1	2.1	3.8	1.6
KDU3459	19422	50077	9552	-12	259	274.1	192.5	194.1	1.6	2.4	1.3
KDU3460	19422	50077	9552	-12	254	255.4	220.0	227.0	7.0	3.0	5.6
KDU3461	19422	50077	9552	-17	255	273.5	198.3	200.4	2.1	2.4	1.6
KDU3461	19422	50077	9552	-17	255	273.5	207.0	208.0	1.0	2.4	0.8
KDU3461	19422	50077	9552	-17	255	273.5	228.0	231.0	3.0	3.2	2.3
KDU3461	19422	50077	9552	-17	255	273.5	235.7	237.0	1.3	2.2	1.0
KDU3462	19422	50077	9552	-18	250	262.1	190.0	192.0	2.0	4.5	1.6
KDU3462	19422	50077	9552	-18	250	262.1	198.5	201.0	2.6	1.6	2.1
KDU3462	19422	50077	9552	-18	250	262.1	205.0	207.0	2.0	2.4	1.6
KDU3462	19422	50077	9552	-18	250	262.1	233.0	238.6	5.6	2.8	4.6
KDU3463	19422	50077	9554	27	254	259.8	230.0	233.1	3.1	2.6	2.6
KDU3463	19422	50077	9554	27	254	259.8	238.0	241.0	3.0	1.8	2.5
KDU3464	19422	50077	9553	12	247	245.9	147.9	149.9	2.1	19.8	1.9
KDU3464	19422	50077	9553	12	247	245.9	159.1	162.2	3.1	3.6	2.9
KDU3465	19422	50077	9553	-4	245	222.5	133.6	134.5	0.9	6.7	0.8
KDU3466	19422	50077	9552	-16	237	238.2	215.0	231.0	16.0	2.0	13.9
KDU3472	19289	50128	9557	10	175	183.4	118.2	133.9	15.7	20.6	9.5
KDU3472	19289	50128	9557	10	175	183.4	122.0	127.4	5.3	11.0	3.2
KDU3472	19289	50128	9557	10	175	183.4	131.0	133.9	2.9	85.3	1.8
KDU3488	19142	50157	9560	0	216	35.2	0.0	9.9	9.9	11.4	9.5
KDU3488	Including					35.2	1.0	3.0	2.0	14.4	1.9
KDU3488	Including					35.2	5.8	8.0	2.2	30.5	2.1
KDU3488	19142	50157	9560	0	216	35.2	15.8	19.5	3.7	3.9	3.5
KDU3489	19145	50162	9560	0	33	25.3			NSI		
KDU3490	19153	50151	9560	0	213	35.1	4.0	9.1	5.1	2.2	4.8
KDU3490	19153	50151	9560	0	213	35.1	25.2	26.4	1.3	2.2	1.2
KDU3491	19156	50156	9560	0	35	17.0	1.1	4.8	3.7	1.8	3.5
KDU3492	19167	50142	9559	0	213	20.0	6.0	12.4	6.4	1.9	6.0
KDU3493	19170	50147	9559	0	35	20.8			NSI		
KDU3495	19185	50136	9559	0	44	20.2			NSI		
KDU3496	19190	50122	9559	0	228	25.1	0.0	16.0	16.0	16.9	15.8
KDU3496	Including					25.1	0.0	3.5	3.5	37.6	3.4
KDU3496	Including					25.1	5.2	9.1	3.9	22.6	3.9
KDU3496	Including					25.1	10.0	16.0	6.0	8.3	5.9
KDU3497	19195	50126	9558	0	47	19.0			NSI		
KDU3500	19226	50087	9559	0	227	25.0	0.0	3.8	3.8	16.7	3.7
KDU3501	19218	50094	9559	0	226	35.1	0.0	4.0	4.0	8.4	3.9
KDU3501	19218	50094	9559	0	226	35.1	22.5	24.6	2.1	4.6	2.0
KDU3502	19222	50098	9559	0	45	30.1	9.4	10.6	1.2	2.1	1.1
KDU3503	19209	50104	9559	0	224	35.1	0.0	6.3	6.3	3.5	6.2
KDU3503	19209	50104	9559	0	224	35.1	0.0	30.1	30.1	4.3	29.5
KDU3503	19209	50104	9559	0	224	35.1	10.6	15.0	4.4	15.2	4.3
KDU3504	19213	50108	9559	0	44	19.3	0.0	2.3	2.3	6.1	2.2
KDU3505	19288	50128	9558	33	226	186.0	82.3	93.0	10.6	4.9	9.9
KDU3505	Including					186.0	89.4	93.0	3.6	9.2	3.3
KDU3505	19288	50128	9558	33	226	186.0	133.0	134.0	1.0	75.4	0.5
KDU3506	19287	50129	9557	16	216	177.1	77.0	79.4	2.4	4.2	2.4

RALEIGH SIGNIFICANT INTERSECTIONS - Exploration											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (Mine Grid)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
RURD282	9112	18049	6060	-9	137	85.1	72.24	72.50	0.3	93.2	0.1
RURD286	9112	18050	6059	-31	167	138.0	117.90	119.25	1.4	68.1	0.3
RURD287	9113	18050	6059	-67	139	113.5	91.59	92.54	1.0	69.7	0.3
RURD289	9121	18146	6119	8	140	148.0			NSI		
RURD290	9121	18145	6119	7	154	178.8			NSI		
RURD292	9128	18154	6118	-11	132	104.3			NSI		
RURD293	9121	18145	6118	-8	145	130.2			NSI		
RURD294	9121	18145	6118	-7	159	173.9			NSI		
RURD295	9073	18018	5995	23	84	104.7	92.15	93.00	0.9	34.9	0.6
RURD296	9073	18018	5995	23	121	116.9	97.82	98.50	0.7	43.6	0.3
RURD297	9073	18018	5994	-14	127	93.0	72.55	73.20	0.7	18.3	0.4
RURD298	9073	18018	5994	-11	153	131.5	107.52	108.20	0.7	30.5	0.1
RURD299	8923	17883	5788	6	107	119.8	107.87	110.30	2.4	7.1	1.7
RURD300	8923	17883	5788	6	130	140.9			NSI		
RURD301	8923	17883	5788	4	145	182.8	159.15	160.75	1.6	3.9	0.4
RURD304	8923	17883	5786	-48	116	137.9	119.60	120.75	1.2		
RURD306	8921	17881	5786	-31	155	186.0	168.90	169.70	0.8	5.7	0.1
RURD307	8873	17846	5650	-1	116	129.0			NSI		
RURD308	8873	17846	5650	-1	136	156.2			NSI		
RURD309	8873	17846	5649	-28	120	126.0			NSI		
RURD311	8873	17846	5649	-50	124	150.0			NSI		
RURD314	8873	17846	5649	-64	133	197.4	158.40	159.00	0.6	90.8	0.2
RURD320	9029	17963	5922	0	169	230.7	211.30	212.80	1.5	11.8	0.3
RURD320	9029	17963	5922	0	169	230.7	213.80	214.80	1.0	27.3	0.2
RURD321	9029	17963	5922	-8	165	173.1	155.00	156.20	1.2	61.1	0.1
RURD322	9029	17963	5922	-7	170	197.3	182.40	183.95	1.6	7.4	0.3
RURD324	9029	17963	5922	-24	172	170.7	154.00	155.16	1.2	102.0	0.4
RURD326	9029	17964	5921	-40	177	179.9	155.00	156.00	1.0	25.9	0.8
RURD331	8873	17848	5649	-28	75	123.1	100.00	100.50	0.5	3.7	0.5
RURD331	8873	17848	5649	-28	75	123.1			NSI		
RURD332	8873	17848	5649	-34	60	138.1	107.80	109.30	1.5	10.7	1.4
RURD332	8873	17848	5649	-34	60	138.1	125.00	125.75	0.8	4.2	0.7
RURD332	8873	17848	5649	-34	60	138.1			NSI		
RURD332	8873	17848	5649	-34	60	138.1			NSI		
RURD332	8873	17848	5649	-34	60	138.1			NSI		
RURD333	8873	17848	5649	-41	51	150.0			NSI		
RURD334	8873	17848	5649	-55	66	150.0	135.90	136.30	0.4	2.4	0.3
RURD335	8873	17848	5649	-65	65	168.0	151.20	152.64	1.4	2.0	1.0
RURD337	9113	18053	6060	9	51	117.0			NSI		
RURD338	9113	18053	6061	12	77	93.0			NSI		
RURD339	9113	18049	6061	13	116	86.5	70.45	70.85	0.4	4.6	0.2
RURD340	9113	18049	6061	8	145	113.7	100.64	101.68	1.0	6.8	0.2
RURD341	9112	18049	6061	4	160	159.0	144.05	144.55	0.5	10.9	0.3
RURD345	9112	18049	6060	-8	172	210.0	186.00	186.80	0.8	19.7	0.4
RURD347	9112	18050	6059	-27	180	222.1	215.00	216.50	1.5	7.0	0.6
RURD348	8972	17918	5856	-7	104	106.0	87.13	87.47	0.3	7.1	0.3
RURD349	8972	17918	5855	-19	118	105.0	86.09	86.40	0.3	5.1	0.3
RURD349	8972	17918	5855	-19	118	105.0	86.40	87.62	1.2	4.5	0.8
RURD352	8971	17917	5856	-4	149	155.8	136.70	137.00	0.3	67.1	0.1
RURD355	8971	17917	5856	-8	161	195.4	181.00	182.80	1.8	12.0	0.1
RURD356	9029	17963	5922	5	167	236.7	204.90	206.10	1.2	28.9	0.3
RURD361	9044	18017	5993	9	161	285.5	265.25	266.90	1.7	2.8	0.1
RURD363	9044	18017	5993	7	169	450.8			NSI		
RURD388	9114	18050	6060	-9	132	90.1	68.00	69.00	1.0	2.1	0.5
RURD392	9113	18050	6059	-25	140	84.0	66.90	67.30	0.4	34.3	0.2
RURD393	9113	18050	6059	-16	151	102.0	85.85	86.15	0.3	136.0	0.1
RURD393	9113	18050	6059	-16	151	102.0	86.15	86.50	0.4	15.4	0.2
RURD394	9113	18050	6059	-18	161	132.0	113.50	114.10	0.6	2.4	0.0
RURD398	9112	18050	6059	-23	168	155.7	134.88	135.75	0.9	1.6	0.2
RURD399	9112	18050	6059	-21	172	168.1	152.30	153.40	1.1	134.5	0.3
RURD402	9112	18049	6059	-28	172	174.0	152.49	153.00	0.5	3.4	0.3

RALEIGH SIGNIFICANT INTERSECTIONS - Resource Definition											
Drill Hole #	Easting (Mine Grid)	Northing (Mine Grid)	Drill hole collar RL (Mine Grid)	Dip (degrees)	Azimuth (degrees, Mine Grid)	End of hole depth (m)	Downhole From (m)	Downhole To (m)	Downhole Intersection (m)	Au (gpt) uncut	Est True Thickness (m)
RURD284	9113	18053	6059	-56	92	92.4	68.65	69.15	0.5	2.7	0.4
RURD302	8927	17896	5787	-41	57	149.8			NSI		
RURD305	8923	17883	5786	-38	142	158.9			NSI		
RURD312	8872	17845	5649	-40	148	170.8	144.18	144.63	0.5	2.6	0.3
RURD316	9030	17963	5923	10	145	147.2	120.50	121.00	0.5	2.2	0.3
RURD317	9030	17963	5923	9	153	155.6			NSI		
RURD318	9030	17963	5923	8	159	175.4	154.32	158.60	4.3	4.4	2.5
RURD325	9029	17964	5921	-20	178	239.9	225.80	227.00	1.2	29.4	0.5
RURD326	9029	17964	5921	-40	177	179.9	155.00	156.00	1.0	25.9	0.7
RURD330	8857	18071	5676	-55	123	189.2	172.25	172.95	0.7	14.2	0.3
RURD336	9113	18051	6059	-28	50	110.5	78.26	78.56	0.3	22.7	0.3
RURD342	9112	18049	6059	-12	166	150.0	132.60	134.74	2.1	27.3	0.4
RURD343	9112	18049	6059	-15	172	182.8	167.35	168.00	0.7	4.4	0.2
RURD344	9112	18049	6059	-23	175	186.1	165.25	167.00	1.8	90.8	0.5
RURD346	9112	18050	6059	-18	178	270.0	240.60	241.00	0.4	2.5	0.2
RURD350	8971	17917	5857	11	137	152.8	132.25	132.80	0.6	339.0	0.2
RURD351	8971	17917	5856	-6	133	124.0	104.43	104.80	0.4	459.0	0.2
RURD353	8971	17917	5856	-13	146	146.7	116.90	119.10	2.2	10.5	1.3
RURD353	8971	17917	5856	-13	146	146.7	123.00	124.00	1.0	4.7	0.2
RURD357	9029	17964	5922	1	167	215.7	191.50	192.34	0.8	55.0	0.4
RURD359	9029	17964	5922	-4	171	230.7	204.95	206.00	1.1	268.0	0.3
SKVGC112	9031	17964	5922	-25	132	96.0	78.20	79.25	1.1	70.1	0.5
SKVGC162	9103	17954	5920	-61	259	55.0	32.00	36.00	4.0	21.2	2.5
SKVGC162	9103	17954	5920	-61	259	55.0	47.63	48.00	0.4	36.7	0.2
SKVGC163	9103	17954	5920	-62	283	51.2	28.60	31.00	2.4	5.8	1.5
SKVGC163	9103	17954	5920	-62	283	51.2	32.83	33.20	0.4	6.4	0.3
SKVGC163	9103	17954	5920	-62	283	51.2	42.49	43.00	0.5	3.6	0.3
SKVGC164	9103	17954	5920	-53	297	50.1	30.10	33.15	3.1	13.2	2.9
SKVGC164	9103	17954	5920	-53	297	50.1	35.65	36.10	0.5	2.4	0.4
SKVGC165	9103	17955	5919	-57	315	49.1	27.56	30.00	2.4	2.9	2.3
SKVGC165	9103	17955	5919	-57	315	49.1	31.00	35.75	4.8	12.2	4.4
SKVGC166	9103	17954	5920	-45	317	50.2	30.75	33.35	2.6	16.4	2.6
SKVGC166	9103	17954	5920	-45	317	50.2	37.01	37.75	0.7	2.4	0.7
SKVGC167	9103	17955	5919	-47	334	51.0	29.00	31.00	2.0	11.7	1.7
SKVGC167	9103	17955	5919	-47	334	51.0	35.80	36.50	0.7	42.7	0.6
SKVGC167	9103	17955	5919	-47	334	51.0	39.82	40.35	0.5	4.9	0.5
SKVGC168	9104	17966	5919	-45	316	49.0	33.00	35.20	2.2	30.4	2.1
SKVGC169	9104	17966	5919	-37	327	53.3	39.85	41.57	1.7	14.4	1.6
SKVGC170	9108	17983	5919	-44	317	45.3	11.00	13.30	2.3	11.6	2.2
SKVGC170	9108	17983	5919	-44	317	45.3	17.00	17.87	0.9	14.1	0.8
SKVGC170	9108	17983	5919	-44	317	45.3	21.85	22.25	0.4	3.1	0.3
SKVGC170	9108	17983	5919	-44	317	45.3	26.50	27.00	0.5	4.5	0.4
SKVGC170	9108	17983	5919	-44	317	45.3	32.60	40.00	7.4	15.4	7.2
SKVGC171	9110	17998	5918	-49	301	42.2	13.40	14.00	0.6	23.2	0.4
SKVGC171	9110	17998	5918	-49	301	42.2	16.00	17.37	1.4	11.1	1.3
SKVGC171	9110	17998	5918	-49	301	42.2	24.00	30.85	6.9	16.9	6.8
SKVGC172	9109	17998	5919	-34	314	44.1	0.00	2.35	2.4	7.3	2.0
SKVGC172	9109	17998	5919	-34	314	44.1	7.00	13.10	6.1	5.0	5.9
SKVGC172	9109	17998	5919	-34	314	44.1	29.53	33.00	3.5	21.7	3.4
SKVGC172	9109	17998	5919	-34	314	44.1	36.40	37.75	1.4	2.4	1.3
SKVGC172	9109	17998	5919	-34	314	44.1	38.89	39.43	0.5	2.2	0.5
SKVGC173	9110	18006	5919	-29	305	42.2	3.50	8.00	4.5	5.7	4.2
SKVGC173	9110	18006	5919	-29	305	42.2	13.00	15.00	2.0	33.1	1.9
SKVGC173	9110	18006	5919	-29	305	42.2	20.50	21.60	1.1	32.2	1.0
SKVGC173	9110	18006	5919	-29	305	42.2	26.50	38.40	11.9	1.6	11.5
SKVGC174	9110	18007	5919	-37	325	42.2	1.00	5.12	4.1	3.0	3.9
SKVGC174	9110	18007	5919	-37	325	42.2	12.00	12.45	0.5	2.5	0.4
SKVGC174	9110	18007	5919	-37	325	42.2	17.70	18.00	0.3	3.0	0.3
SKVGC174	9110	18007	5919	-37	325	42.2	25.60	31.00	5.4	24.1	1.0
SKVGC174	9110	18007	5919	-37	325	42.2	35.00	35.40	0.4	5.3	0.1
SKVGC175	9110	18007	5919	-22	337	51.4	31.40	34.00	2.6	8.6	2.0
SKVGC175	9110	18007	5919	-22	337	51.4	41.10	41.40	0.3	28.6	0.2
SKVGC176	9110	18007	5919	-6	341	50.9	2.00	18.00	16.0	12.2	10.7
SKVGC176	9110	18007	5919	-6	341	50.9	23.60	26.00	2.4	2.5	1.6
SKVGC176	9110	18007	5919	-6	341	50.9	32.00	32.95	1.0	11.9	0.6
SKVGC176	9110	18007	5919	-6	341	50.9	42.80	44.00	1.2	3.2	0.8
SKVGC176	9110	18007	5919	-6	341	50.9	45.80	46.10	0.3	3.6	0.2
SKVGC176	9110	18007	5919	-6	341	50.9	47.30	47.95	0.7	20.7	0.4

TABLE 1s

JORC Code, 2012 Edition – Table 1 Voyager, Titan, Upper Paulsens Underground Resources and Reserves - June 30 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by Reverse Circulation (RC), Diamond Drilling (DD) and face chip sampling. Sample intervals are defined by the geologist to honour geological boundaries. RC drill results are also used in the Upper Paulsens model.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and most surface core drilling completed by previous operators to industry standard at the time (late 1990's to 2011).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling and face sampling are completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. Pre June 2013 diamond core samples are fire assayed (30gm charge), current fire assay charge is 40gm. Face samples are assayed by Leachwell. Visible gold is occasionally encountered in core and face sampling. RC sampling to industry standard at the time. There is evidence of mineralisation widths being exaggerated in the lower zone particularly, these areas have now been mined out and not affect current resource.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Upper Paulsens model: Surface RC drilling, 329 holes (face sampling hammer, ~5 1/4" bit size), Surface drill core, 135 holes, (NQ2 sized, standard tube), 1,664 sludge holes, 1,393 Underground DD, 4,828 faces. Voyager and Titan model: Surface drill core, 51 holes, 178 surface RC holes, Underground drill core, 2,504 holes as well as 5,391 faces/rises used to generate sample composite. The diamond holes are LTK60 and NQ2 size. Surface core is orientated using the EZ ORI-shot device, underground drill core is rarely oriented. Faces are chip sampled aiming to sample every ore development cut but ~10% of ore cuts were missed pre 2015, now all faces are mapped and sampled.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Diamond drill recoveries are recorded as a percentage calculated from measured core versus drilled intervals. Achieving >95% recovery. Greater than 0.2 metre discrepancies are resolved with the drill supervisor. Surface RC drill recoveries are unknown.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Standard diamond drilling practice results in high recovery due to competent nature of the ground. RC drilling by previous operators to industry standard at the time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core logging is carried out by company geologists, who delineate intervals on geological, structural, alteration and/or mineralogical boundaries, to industry standard. Surface core and RC logging was completed by previous operators to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and all core is photographed. All sampled development faces are photographed. Visual estimates are made of sulphide, quartz and alteration percentages.
	The total length and percentage of the relevant intersections logged.	100% of all drilling is logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	LTK 60 is generally whole core sampled, NQ2 core is generally half core sampled. If not whole core sampled, then core is half cut with an Almonté diamond core saw and half core sampled. The right half is sampled, to sample intervals defined by the logging geologist along geological boundaries. The left half is archived. All major mineralised zones are sampled, plus associated visibly barren material, >5m of the hangingwall and footwall. Quartz veins >0.3m encountered outside the know ore zone and ±1m on either side are also sampled. Ideally, sample intervals are to be 1m in length, though range from 0.30m to 1.20m in length. Total weight of each sample generally does not exceed 5kg. All samples are oven-dried overnight (max 120^0), jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30gm charge weight using a spatula, and the pulp packet is stored awaiting collection by Northern Star Resources Limited(NSR). Post 2013, samples are crushed to 90% passing 3mm before a rotary split to 2.5 kg, all of which is then pulverised to 90% passing 75 micron. For older core pre- NSR, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag, aiming for >2.5kg. Sample intervals range between 0.3 – 1.2m in length, modified to honour geological boundaries, and taken perpendicular to the mineralisation if practical. Site lab sample preparation since January 2013 uses a Boyd to crush and split to 3mm. Previous to that a jaw crusher (6mm aperture) and 50/50 rifle splitter were used.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation is deemed adequate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For drill core, the external labs coarse duplicates are used. One face sub-sample per day is sent offsite for fire assay analysis to compare to Leachwell assay results. RC drilling by previous operators to industry standard at that time.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e. other half of cut core, are not been routinely assayed. For each development face, one field duplicate is taken of the highest grade area, to assess the reproducibility of the assays, and the variability of the samples. Variability is very high due sampling technique and to nuggetty nature of the mineralisation. The variability is accepted, countered by the high density of sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gm charge weight. An AAS finish is used, considered to be total gold. A 40gm fire assay charge is used post June 2013. Various multi-element suites are analysed using a four acid digest with an ICP-OES finish. Face samples are analysed using Leachwell process, and are not considered total gold. RC drill samples by previous operators assumed fire assay with AAS finished.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No other sources of data reported

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples. Site sourced coarse blanks are inserted at an incidence of 1 in 40 samples. From April 2013 commercial blanks are used. Commercially prepared certified reference materials are inserted at an incidence of 1 in 40 samples. The CRM used is not identifiable to the laboratory. NSR's blanks and standards data is assessed on import to the database and reported monthly, quarterly and yearly. The primary laboratory QAQC protocols used include the following for all drill samples: Repeat of pulps at a rate of 5%. Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples. The laboratory and Geology department report QAQC data on a monthly basis. Failed standards are followed up by re-assaying a second 30g pulp sample of the failed standard ± 10 samples either side by the same method at the primary laboratory. One standard is inserted with every face sampling submission to assess site lab performance. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) are deemed acceptable. QAQC protocols for surface RC and diamond drilling by previous operators is unknown, assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are reviewed by the Geology Superintendent and senior corporate personnel.
	The use of twinned holes.	Twinned holes are not specifically designed. Occasionally deviating holes could be considered twins, showing similar tenor of mineralisation.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Until June 2014, data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database. Data is now entered in the OCRIS data capture system, where it is then exported to the GBIS Geology database after validating. Hard copies of face and core / assays and surveys are kept on site. Internal checks are made comparing database to raw assays files. Visual checks are part of daily use of the data in Vulcan. Data from previous operators taken from 2006 database compilation by Maxwell Geoservices and further maintained by a succession of Paulsens owners All data now stored in GBIS and electronically logged and downloaded.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any resource estimation.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Drill hole collar positions are picked up by survey using a calibrated total station Leica 1203+ instrument. Drill hole, downhole surveys are recorded at 15m and 30m, and then every 30m after, by calibrated Pathfinder downhole cameras. Face samples are located by laser distance measurement device and digitised into Vulcan software. The faces are represented as "pseudo-drill holes" to allow assignation of survey, lithology, assay, and other relevant information. Underground workings are tied into defined surface survey stations. Surface hole collars picked up by the mine surveyors in mine grid. Pre - NSR survey accuracy and quality assumed to be industry standard.

Criteria	JORC Code explanation	Commentary
	Specification of the grid system used.	A local grid system (Paulsen Mine Grid) is used. It is rotated 40.61 degrees to the west of MGA94 grid. Local origin is 50,000N and 10,000E. Conversion MGA E = East_LOC*0.75107808+North_LOC*0.659680194+381504.5) +137.5 MGA N = (East_LOC*-0.65968062+North_LOC*0.751079811+7471806) +153.7 MGA RL = mRL_LOC-1000
	Quality and adequacy of topographic control.	Topographic control is not that relevant to the underground mine. For general use recent Arvista aerial surveys are flown annually. Resolution is +/- 0.5m.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Exploration result data spacing can be highly variable, up to 100m and down to 10m.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Measured data spacing is better than 7m x 7m, and restricted to areas in immediate proximity to mined development. Data spacing for indicated material is approximately, or better than, 20m x 20m. All other areas where sample data is greater than 20m x 20m, or where intercept angle is low, is classified as inferred.
	Whether sample compositing has been applied.	Core and faces are sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples in ores zones above assumed threshold.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Intercept angles are mixed, however, all material remains inferred until reconciled by moderate to high angle (45° to 90°) grade control drilling, or mining activities. Hanging-wall drill drives provide excellent intercept orientation to the geological structures used in the estimate.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises, better angled holes are drilled with higher intersection angles.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipts. Sample pulp splits are returned to NSR via return freight and stored in shelved containers on site. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Recent external review confirmed core and face sampling techniques are to industry standard. Data handling is considered adequate and was further improved recently with a new database. Pre NSR data audits found less QAQC reports, though in line with industry standards at that time.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	Mining Leases M08/196 and M08/99 are wholly owned by Northern Star Resources (NSR) and in good standing. Surface expression of the Paulsens Gold Mine is on Mining Lease M08/99, most of underground workings are on neighbouring Mining Lease M08/196. There are no heritage issues with the current operation. Relationship with the traditional owners is good. There is an on-going production royalty payment to the traditional owners the terms of which are confidential.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Mining Leases M08/196 and M08/99 are valid for 21 years and are renewable.

Criteria	JORC Code explanation	Commentary
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to these resources was collected by CRA, Hallmark, Taipan, St Barbara, Nustar and Intrepid Mines Ltd previous to NSR. All previous work is accepted as to be at industry standard at the time.
Geology	Deposit type, geological setting and style of mineralisation.	Paulsens is a high grade, quartz hosted, mesothermal gold deposit within metasediments.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many (>6,000) holes to practically summarise all information for all drill holes and faces used in the resources. Detailed drill hole data is periodically released on ASX with all relevant information attached and can be found on the Northern Star website.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	See last ASX releases dated 13/01/2015, 19/02/2014, 05/09/2013, 23/09/2013, 02/08/2013, 29/05/2013, 16/05/2013, 20/01/2013, 12/12/2012, 1/10/2012, 24/8/2012, 04/07/2012, 07/06/12, 29/05/2012, 12/04/2012, 6/03/2012, 25/11/2011, 17/11/2011, 09/11/2011, 13/10/2011, 12/09/11, 30/05/2011, 12/04/2011, 16/03/2011, 06/01/2011, 04/01/2011, 22/12/2010, 10/12/2010, 02/12/2010, 14/10/2010, 04/08/2010.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration resulted not reported.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration resulted not reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results:	Exploration resulted not reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration resulted not reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See long section in main release and previous ASX releases. See plan view with drill traces.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration resulted not reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other relevant data to report.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Drilling will continue down plunge, to the north, and as needed for grade control in line with the mine plan.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of this ASX announcement.

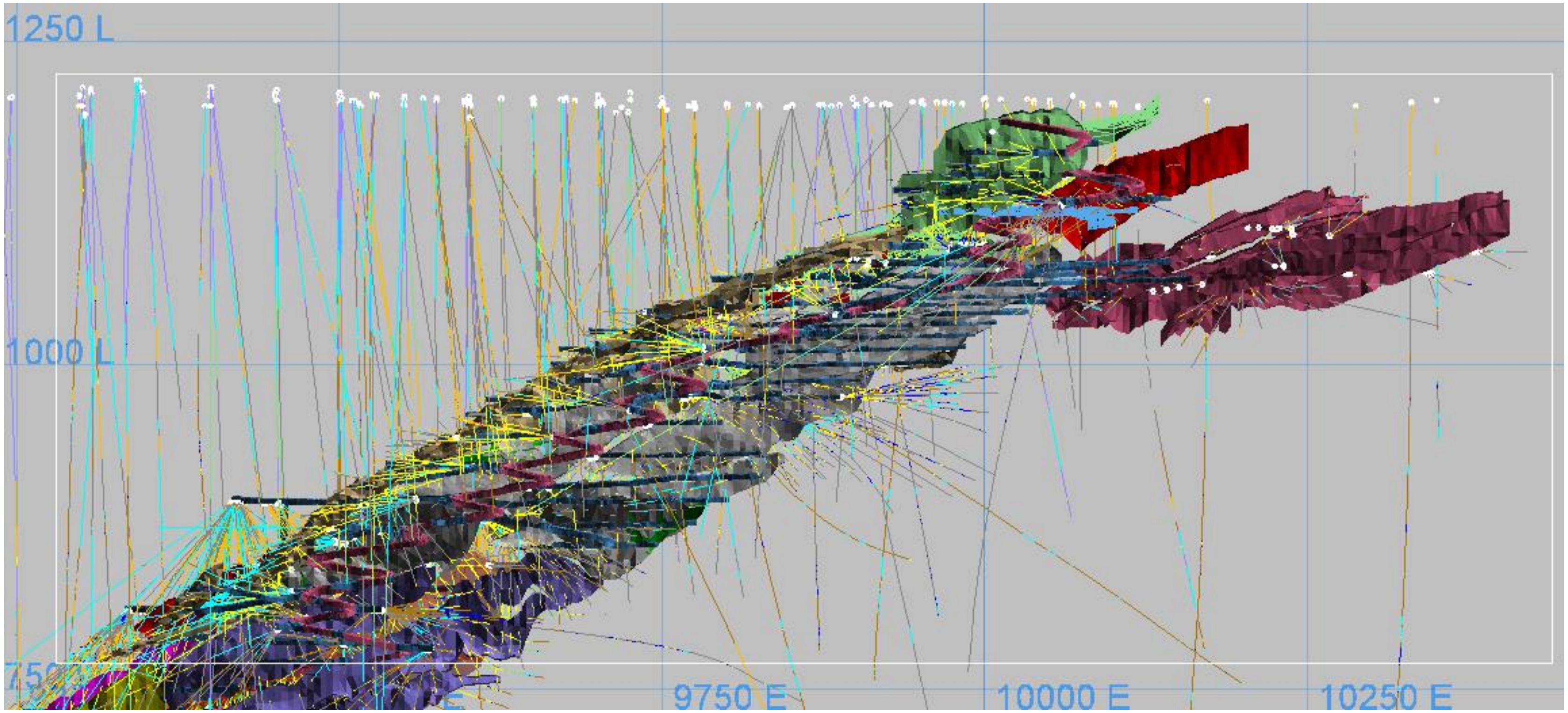
Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

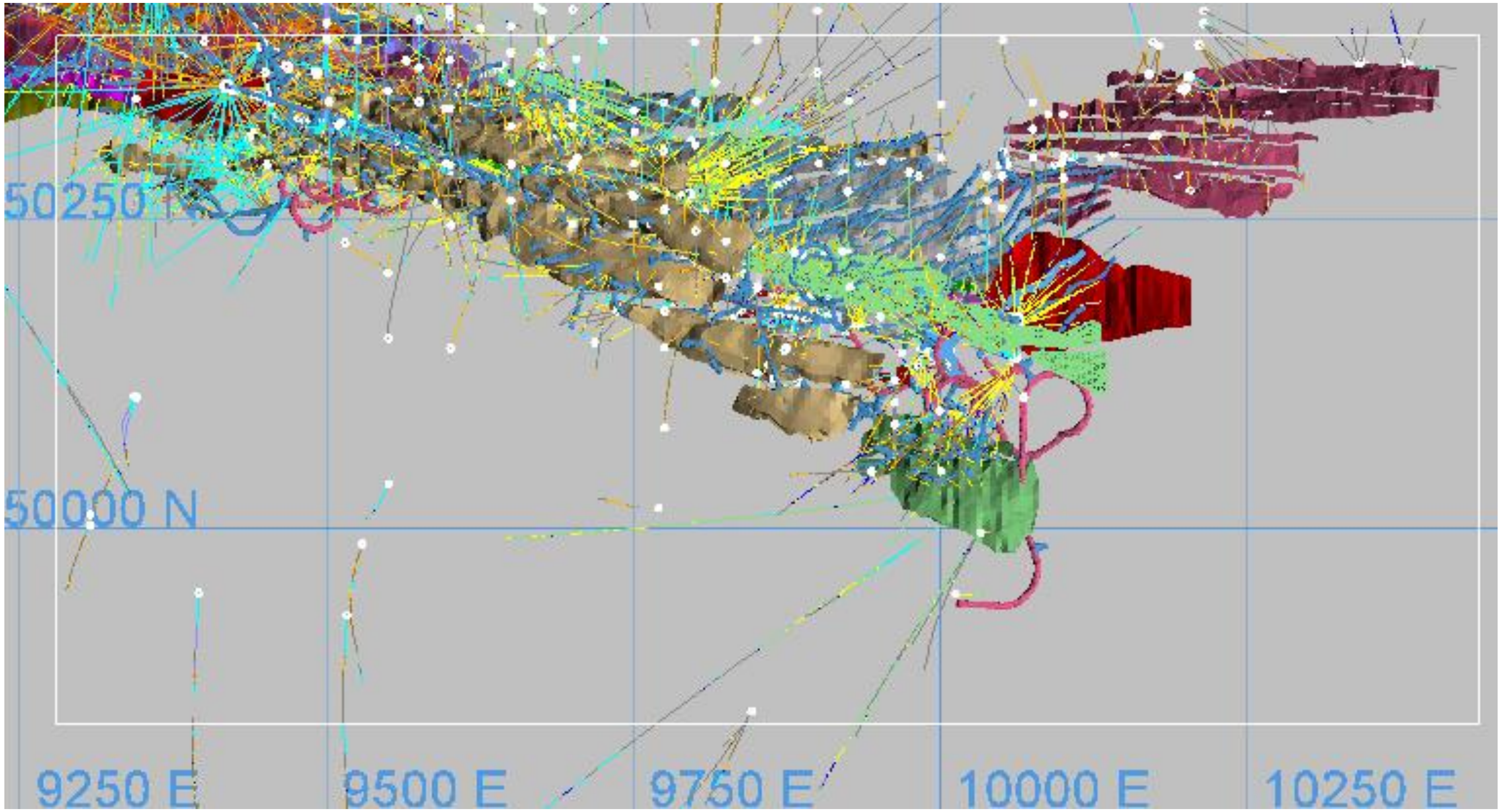
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is entered into the OCRIS logging data capture system then transferred to GBIS database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from the laboratory. Pre Northern Star Resources (NSR) data assumed correct, maintained by database administrators.
	Data validation procedures used.	Random checks through use of the data as well as database validations. Checks as part of reporting significant intersections and end of program completion reports are also completed. In addition to this, 5% of the underground drill holes, faces and sludge samples have been validated against the raw data collected. Maxwell Geo Services extensively validated the 2006 data compilation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	This resource estimate has been conducted by geologists working in the mine and in direct, daily contact with the ore body data used in this resource estimate. The Competent Person has worked at the deposit for >4 years and is the Geology Superintendent.
	If no site visits have been undertaken indicate why this is the case.	See above.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is high with all the information and plus 11 years of operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling faces, photos, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No substantially different, alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	The majority of mineralisation is located within a large, variably folded and faulted quartz host, close to, or on, the contacts with the surrounding wall rock sediments between an offset Gabbro intrusive. Drill core logging and face development is used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to the quartz and sulphide events within the boundaries of the gabbro extent. Mineralised veins are also within the gabbro.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Upper Paulsens: Strike length = 1,100m down plunge at 30-35deg to the west Width = ~80m (though high grade component ~ 5m wide) Depth = from ~130m below surface to ~550m below surface Voyager: Strike length = 1,850m down plunge, 25-30 degrees to grid west Width = ~190m Depth = from ~550m below surface to ~1,100m below surface Titan Strike length = 350m down plunge, 25 degrees to grid west Width = 50m Depth = from 750 to 925m below surface
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Inverse distance squared (ID2) was used to estimate this resource, using Vulcan 8. 35 mineralisation domains (in three models) were used to constrain the various lodes, defined by orientation, geological continuity, and grade population. Each domain is validated against the lithology, and then snapped to the drill-hole and face data to constrain the mineralised envelope as a 3D wireframe. Compositing of drill-hole samples was completed against these wire framed domains at 1m (downhole) interval.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Recent reconciliations of the area have been in line with resource expectations.

Criteria	JORC Code explanation	Commentary
	The assumptions made regarding recovery of by-products.	No assumptions are made, but silver is a by-product that makes up part of the refinery revenue. This is not in the model and only gold is defined for estimation
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 5m x 4m x 5m, sub-blocked to 1m x 0.25m x 1m to suit the narrow east-west orientation of the majority of the domains. Average sample spacing is 3.5m in the case of face samples. Search ellipsoids are 25 * 12 * 6m to 50 * 20 * 10 m, varying the minimum number of samples required on successive passes as well as utilizing an octant search to decluster.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were used based on statistical analysis undertaken in Supervisor that ranges from 10 to 200gpt on individual domains. Top cuts are set to incorporate approximately 97.5% of the available sample population for each domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation is through swath plots comparing composites to block model grades, along 20m eastings and RL, comparing the block model means vs composite means for each domain. Visually, block grades are assessed against drill hole data.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is low (~1-2 %).
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 2.5gpt based on breakeven stope grade with development in place.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Standard sub level retreat mining methods are predominantly used. Historical mining and reconciliation data has been taken into consideration but without affecting wire frame interpretation. The total model has been coded to identify previously mined areas and only reports remnant mineralisation, most of which was left behind as uneconomic at the time, with previous operators hedged at $A650/ounce for a large part of the mine life.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The ore is considered to be free milling (over 11 years 91.5% recovery), average hardness (BWI15-16) with no significant refractory component. There are few deleterious elements, the footwall graphitic shales can affect recovery through preg-robbing if processed on its own. Locally, high percentages of pyrrhotite and chalcopyrite have been known to affect recovery. This known effect is managed through blending the ROM feed to the crusher prior to milling.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Paulsens is an operating mine with 11 years' history and all permits and closure plans in place. As with all fresh underground deposits, when mined, natural oxidation and weathering occurs, however, the ore and waste material mined at Paulsens has been reviewed several times by both independent and contracted consultants with the overall comment that there appears to be no major effects on the environment outside of the environmental conditions imposed with the granting of the initial mining license.

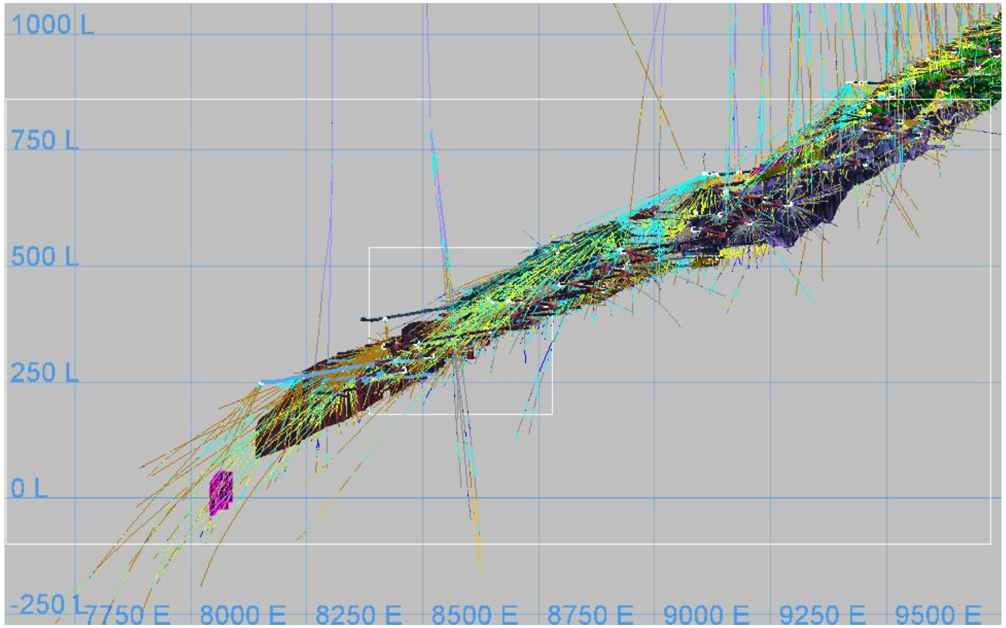
Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Over 4,000 bulk density measurements from diamond drill holes have been taken from 17 mineralized and unmineralised intervals within the project area. The bulk densities are derived from laboratory pycnometer readings, with some of the domain densities adjusted over time through mine tonnage reconciliations. Immersion method SG calculations are now routinely preformed to validate against the block model bulk density estimates.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Minimal voids are encountered in the ore zones and underground environment.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units and ore zones.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is defined by data spacing of diamond holes, face/wall and rise sampling and reflects the degree of confidence in the areas specified. Measured Resource classification is where the estimate is supported by data less than 5m apart and/or within 5-7m of development. Indicated Resource classification is where the mineralisation has been sufficiently defined by a drill spacing of 12-15m x 12-15m or better, and/or where development has occurred within 12-15m. Inferred Resource is based in addition to the above to a maximum search distance of 50 m from last sample point and high angle drill intercepts. The Upper Paulsens resource has not been audited externally. Previous estimates of this area utilising the same, or very similar variables, have been reviewed by external parties and internal parties with protocols deemed appropriate. The area has also been externally estimated by Ordinary Kriging (Hellman and Schofield 2007-2010), Inverse distance (ResEval Pty Ltd) 2004-2006, Conditional Simulation and Ordinary Kriging (Golders) 2002.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Classification is primarily based on 11 years of Paulsens mining experience.
	Whether the result appropriately reflects the Competent Person’s view of the deposit.	This mineral resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This particular resource has not been audited externally. Previous estimates of this area utilising the same, or very similar variables, have been reviewed by external parties and internal parties with protocols deemed appropriate.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This resource is an iterative, evolutionary approach, attempting to increase confidence with each estimation. Taking account of all reconciliation, audits, mentor, and increased ore body knowledge the qualitative confidence improves with mining and drilling.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Upper Paulsens, Voyager 1 and 2 and Titan areas, and will show local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The current inverse distance estimation methodology appears to perform sufficiently as an estimation technique for the Paulsens mineralisation.



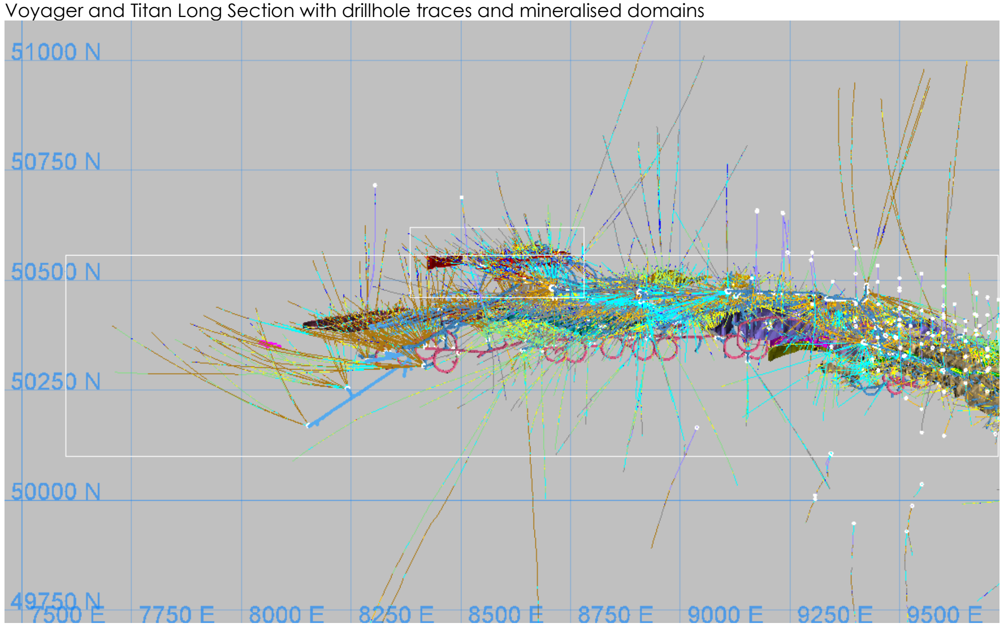
Upper Paulsens Long Section with drillhole traces and mineralised domains



Upper Paulsens Plan View with drillhole traces and mineralised domains



Voyager and Titan Long Section with drillhole traces and mineralised domains



Voyager and Titan Plan View with drillhole traces and mineralised domains

NORTHERN STAR RESOURCES LIMITED

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	NST MY 2016 resource
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources are reported inclusive of the Ore Reserve
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person is the Underground Manager at Paulsens with extensive site experience
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Update of previous Ore Reserve
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Update of previous Ore Reserve
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Break even cut off of 3.63 gpt applied
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Indicated Resources were converted to Probable Ore Reserves subject to mine design physicals and an economic evaluation. Measured material existed in the Voyager Resource model which subsequently converted to Proven Reserves. Further to this stockpiles and gold in circuit (GIC) and gold in transit (GIT) were considered as Proven.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Selected mining method deemed appropriate as it has been used at Paulsens since 2005
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Assumptions based on actual mining conditions
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This table one applies to underground miring only
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 20% for stoping and 17% for development is applied based on historical data
	The mining recovery factors used.	Mining recovery factor of 100%, mining dilution of 20% for stoping and 17% for development is applied based on historical data
	Any minimum mining widths used.	2.0m
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Designed stopes with greater than 50% inferred blocks are excluded from the reported reserve
	The infrastructure requirements of the selected mining methods.	Infrastructure in place, currently is an operating mine
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Paulsens gold mill utilises a CIL (Carbon in Leach) circuit for the extraction of gold. Reserves are based on historical data from the operation of the plant and a Processing recovery of 90% is used for Paulsens based on historical results.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 11 years' continuous operation
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Milling experience gained since 2005, 11 years' continuous operation
	Any assumptions or allowances made for deleterious elements.	No assumption made

Criteria	JORC Code explanation	Commentary
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained since 2005, 11 years' continuous operation
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Gold only being reported
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Paulsens is currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	All current site infrastructure is suitable to the proposed mining plan.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Actual mine operating costs used
	The methodology used to estimate operating costs.	Processing, Mining Services, Geology Services and Administration costs have been estimated as a cost per ore tonne based on tracked historical performance. Mining Services fixed cost is based on the monthly lump sum provided in the schedule of rates and then annualised and divided by the budgeted annual processing rate to obtain a cost per ore tonne.
	Allowances made for the content of deleterious elements.	No allowances made for deleterious elements
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only, using a long-term gold price of AUD$1,500 per ounce 2.5% WA State Government royalty.
	The source of exchange rates used in the study.	All in $A
	Derivation of transportation charges.	Historic performance
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Refining charge built into the cost model
	The allowances made for royalties payable, both Government and private.	All royalties are built into the cost model
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue was based on a gold price of AUD $1,500 per ounce.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidelines.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not relevant to gold
	Price and volume forecasts and the basis for these forecasts.	Not relevant to gold
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not relevant to gold
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the mine and current economic forecast seen as representative of current market conditions
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities not assessed

Criteria	JORC Code explanation	Commentary
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	No issues foreseen
	The status of material legal agreements and marketing arrangements.	No issues foreseen
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	As a current operation, all government approvals are in place. No impediments are seen in any of these agreements for the continuation of mining activities.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	None
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	There have been no external reviews of this Ore Reserve estimate. Internally reviewed by corporate staff.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the model and Ore Reserve Estimate is considered high based on current mine and reconciliation performance
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Estimates are global but will be reasonable accurate on a local scale.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Other than dilution and recovery factors, no additional factors have been applied to the 2016 MY estimation.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation results from past mining at Paulsens has been considered and factored into the reserve assumptions where appropriate.

JORC Code, 2012 Edition – Table 1 Report: Belvedere 30 June 2015

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by Diamond Drilling (DD) and Reverse Circulation (RC) drilling. Diamond core sample intervals are defined by the geologist to honour geological boundaries. RC initially sampled to 4m comps, any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC drilling completed by previous operators, assumed to be to industry standard at the time (1998). Northern Star Resources(NSR) sampling methodologies are to current industry standard.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	DD completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR and Intrepid Mines Ltd diamond core samples are fire assayed (50gm charge). Fine grained free gold is encountered occasionally. Pre NSR, Taipan Resources NL RC sampling assumed to be industry standard at that time. NSR RC sampling using mounted static cone splitter used for dry samples to yield a primary sample of approximately 4kg
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Surface RC drilling of 73 holes used ~5.25" face sampling bit. Surface DD core, 8 holes using NQ2. The surface core was orientated using the ORI-shot device
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core versus drilled intervals. Overall recoveries are good.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC and diamond drilling by previous operators to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There has been no work completed on the relationship between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	RC chips and surface DD core logged by company geologists to industry standard. All relevant items such as interval, lithologies, structure, texture. Grains size, alterations, oxidation mineralisation, quartz percentages and sulphide types and percentages are recorded in the geological logs. RC logging completed by previous operators to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative, all core photographed and visual estimates are made of sulphide, quartz alteration percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core and RC drilling chips were logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core sample intervals are generally to 0.3-1.2m in length, honouring lithological boundaries to intervals less than 1m as deemed appropriate. NQ2 core is half core sampled cut with Almonté diamond core saw. The right half is sampled, to sample intervals defined by the Logging Geologist along geological boundaries. The left half of core is archived. All samples are oven-dried overnight (105^{0}C), jaw crushed to <10mm. The total sample is pulverised in an LM5 to 90% passing 75µm and bagged. The analytical sample is further reduced to a 50gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	NSR RC initially sampled to 4m comps, any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites. Rig mounted static cone splitter used for dry samples to yield a primary sample of approximately 4kg. Off-split retained.

Criteria	JORC Code explanation	Commentary
		Duplicate samples are taken at an incidence of 1 in 25 samples. Pre- NSR assumed to be industry standard
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	There was no data available on Taipan sample preparation practices. It is assumed to be industry standard along with NSR processes which are Industry standard.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	NSR standard QAQC procedures and previous owners in the case of Taipan are assumed as Industry standard.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	The field QAQC protocols include; duplicate samples at a rate of 1 in 25, coarse blanks inserted at a rate of 3%, commercial standards submitted at a rate of 4%. Industry standard QAQC procedures are assumed to have been employed by Taipan.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	DD - Core is half cut. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. Total gold is determined by fire assay using the lead collection technique (50 gm sample charge weight) and AAS finish. Various multi-element suites are analysed using a four acid digest with an ICP-OES finish. Taipan Resources NL assay techniques were assumed to be industry standard
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The laboratory QAQC protocols include a repeat of pulps at a rate of 3%, sizing at a rate of 1 per batch. The labs internal QAQC is loaded into NST database. In addition to the above, about 5% of samples are sent to an umpire laboratory. Failed standards trigger re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) are deemed acceptable. Although no formal heterogeneity study has been carried out or nomograph plotted, informal analysis suggests that the sampling protocol currently in use is appropriate to the mineralisation encountered and should provide representative results. Industry standard QAQC procedures are assumed to have been employed by pre NSR operators
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are verified by NSR senior staff as required.
	The use of twinned holes.	There is no purpose drilled twin holes however holes BVRC018 and BVRC027 are 4m apart and reported 6m @ 2.6gpt and 5m @ 2.4gpt respectively.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data thoroughly vetted by database administrators. Data is stored in GBIS database has several inbuilt validations. Taipan holes of the 2006 database collated and extensively verified by Maxwell Geoservices previously.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	NST collar positions were surveyed using DGPS. Taipan Resources NL collars were surveyed at the end of a drill program. Old mine workings have been picked up on surface but actual extent and depth has been estimated using 1930's survey plan. Topographic control uses Avista photo data supplemented with local DGPS pickups.
	Specification of the grid system used.	MGA 94_50
	Quality and adequacy of topographic control.	Topographic control is based on the collar surveys and Avista photogrammetric survey.
	Data spacing for reporting of Exploration Results.	Exploration results are based on the Drill traces as attached.

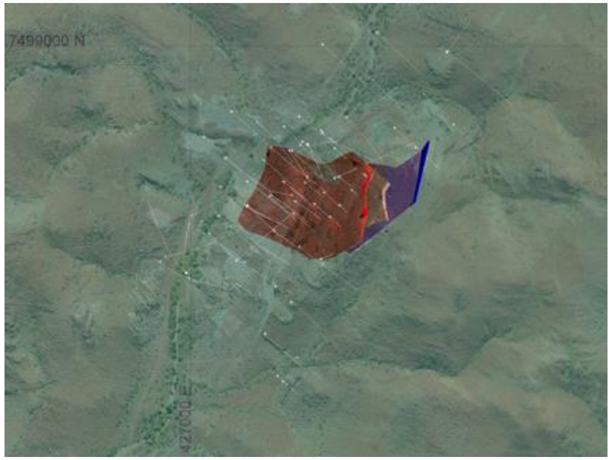
Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Data spacing is approximately 20m by 20m. Except one area where deviating holes have left a larger gap of 20m by 40m. Data spacing is adequate for the resource estimation.
	Whether sample compositing has been applied.	Drill core is sampled to geology; sample compositing is not applied until the estimation stage. NSR RC samples initially taken as 4m composites to be replaced by 1 m samples if assays >0.1gpt were reported. Taipan RC samples treated similarly though historical details not fully reviewed
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Intercept angles are predominantly moderate to high angle (70° to 90°) to the interpreted mineralisation resulting in unbiased sampling.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Unknown, assumed to not be material.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by NSR. Samples are stored on site and are delivered to assay laboratory in Perth by Contracted Transport Company. Consignment notes in place to track the samples. Whilst in storage they are kept in a locked yard. Pre NSR operator sample security assumed to be adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There have not been improved reviews of sampling techniques on NSR drilling phases.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	Mining Lease M08/222 is wholly owned by Northern Star Resources Limited and is in good standing. Heritage surveys have been conducted and the area was cleared for drilling. Relationship with the traditional owners is well informed and adequate.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Mining Lease M08/222 is valid currently to 2021. The access road L08/15 is valid until 2020.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Pre NSR data relevant to this resource was collected by Taipan Resources NL (35 RC holes in 1998). All previous work is accepted as to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Mineralisation at this deposit is considered a mesothermal quartz reef (s) associated with quartz carbonate +/ pyrite, arsenopyrite chalcopyrite and galena, on the contact of by a north south trending dolerite dyke and surrounding sediments. A smaller domain is fault hosted and external to the dolerite host
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	No exploration results being released this time.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	No exploration results being released this time.

Criteria	JORC Code explanation	Commentary
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results being released this time.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Weighted by length when compositing for estimation.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration results being released this time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Geometry of the mineralisation to drill hole intercepts is at a high angle, often nearing perpendicular.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	No exploration results being released this time.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See plan view of drill traces for Belvedere and surrounding areas.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results being released this time.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Old Belvedere mine, extents Other Exploration results not considered material. Geotechnical holes were drilled in 2015, results from these are used in pit optimisations.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Follow up drilling to infill and extend.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	See attached plan view



Plan view of Belvedere with drilling and mineralisation.
Belvedere Fault mineralisation in blue, this is open to the north.
Other lodes constrained to the Dolerite host and are only open down dip

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is entered directly into the logging package OCRIS. Constrained look-up lists, depth and some interval validation are inbuilt and ensure that the data collected is correct at source. Data is imported to a GBIS relational geological database where additional validation checks are carried out, including depth checks, interval validation, out of range data and coding. Where possible, raw data is loaded directly to the database. Pre Northern Star Resources Limited(NSR) data assumed correct but no validation has been undertaken. For all data the drilling looked reliable visually and no overlapping intervals were noted.
	Data validation procedures used.	NSR data validated by database administrators by checking 2% of raw data files. Taipan Resources NL data has not been validated apart from resurveying the old collar positions where found. No inconsistencies were found.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken several times by the competent person
	If no site visits have been undertaken indicate why this is the case.	Site visited.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology by the supervising and logging geologists. Sectional interpretations were digitized in Vulcan software and triangulated to form three dimensional solids. Confidence in the geological interpretation is moderate. Weathering zones and bedrock sub surfaces were also created.
	Nature of the data used and of any assumptions made.	All available valid data was used including drill data, mapping previous interpretations and existing 1930's mine development extents Where pre-NSR drill data was used it is assumed to be correct.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There are currently no different interpretations.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology is used to constrain the quartz veins to the dolerite host.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to quartz vein extent, within the constrained dolerite dyke host.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Strike length = 150m Width = 80m with zones 2 to 3m thick Depth = from surface to ~160m below surface (top ~20m mined in the 1930's and wholly excluded from the resource)
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	ID2 was used to estimate this resource using Vulcan 9.1 software. Domains are snapped to drilling, and composited to 1m downhole, Composites of less than 0.15m length are merged with the last composite. Four domains were used to reflect the 2 styles of mineralisation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	A resource was estimated internally in June 2015.
	The assumptions made regarding recovery of by-products.	No assumptions of by product recovery are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 2.5m x 2.5m x 2.5m. Sub-celled down to 1.25m x 1.25m x 1.25m to best fit estimation domains. Average drill hole spacing is variable ranging from <10m to 40m (average sample spacing~ 25m) Two search ellipse 70m x 25m x 9m (for Main, Hanging-wall and footwall zone) and 50m x 50m x 10m (belvedere fault zone) were used. Minimum of 4 samples to estimate, max 2 samples per octant.
	Any assumptions behind modelling of selective mining units.	No assumptions made.

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	"Ore" wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wire frame.
	Discussion of basis for using or not using grade cutting or capping.	Composites were cut to 20gpt (Main and hanging-wall) and 5gpt (Footwall and Belvedere Fault mineralisation) based on log distribution.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades were compared visually to drilling data. Validation is also through swath plots comparing composites to block model grades, along 10m eastings, 10m nothings and 5m elevation's, comparing Inverse distance to nearest neighbour estimations. All compared favourable but there was no reconciliation against previous mining.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low (~1-2 %) as it is fresh rock with minimal voids reported.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 1.0gpt based on similar gold projects in the Ashburton Goldfields. Modeling lower grade cut off = 0.3gpt nominally, not more than 2m of internal dilution and requires minimum 2 holes.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed Belvedere will initially be mined by open cut mining methods, and quick evaluations support the economics. Below the economic pit depth, grades are high enough to potentially be mined by underground methods.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Extensive metallurgical testing including comminution, leaching and adsorption, flocculation, rheology and geochemistry test work was completed by ALS metallurgy in early 2015. Belvedere ore will be amenable to processing in the existing plant though the thickener may need to be optimised for best recovery.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	No environmental, permitting, legal, taxation, socio-economic, marketing or other relevant issues are known, that may affect the estimate.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density used was based on 756 samples from 5 diamond holes. Measurements were taken using the immersion method and related back to dominant rock code.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density of the host rock is well covered, but of the mineralisation only lower grade intersections are represented in only 7 samples. Ten samples were used to determine an average SG of weathered rock.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on drill spacing to delineate inferred and indicated resource. There is no Measured category.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Confidence in the relative tonnage and grade is high, NSR data input reliable, Taipan data assumed to be reliable (based on Paulsens experience). Distribution of data and continuity is moderate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The result appropriately reflects the Competent Person(s)' view of the deposit.

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This particular resource has not been externally reviewed or audited.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered as robust and representative. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale. It relies on historical data being of similar standard as recent infill drilling. This applies to approximately half of the holes. The relevant tonnages and grade are variable on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Belvedere area where it is likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	There is no production data available.

JORC Code, 2012 Edition – Table 1 Report: Mt Olympus – As at Dec 31 2012

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by diamond drilling and RC drilling completed by NSR (Northern Star Resources Limited) and previous operators. NSR – DD. Sampled sections are generally NQ2. Core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.5m in length. NSR - RC - Rig-mounted static cone splitter used with the aperture set to yield a primary sample of approximately 4kg for every metre (representing approximately one eighth of the total sample). Off-split retained. RC and DD sampling by previous operators to industry standard at that time often using 1m samples after initial 4m composites. It is unknown what grade threshold triggers the 1m re-samples.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and surface core drilling completed by previous operators to industry standard at that time (1988 initial discovery, to 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.5m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR (Northern Star Resources Limited) diamond core samples are fire assayed (50g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC – Reverse circulation drilling is carried out using a face sampling hammer and a 5¼ inch diameter bit NSR surface diamond drilling carried out by using both HQ3 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	NSR diamond drilling practice results in high recovery due to the competent nature of the ground. For RC drilling, efforts are made to ensure good recoveries are achieved by the use of auxiliary compressors and high pressure booster units supplying compressed air at a high enough pressure to keep water from the hole and the samples dry in most circumstances. Where water is encountered in the pre-collar and wet samples result, more frequent cleaning of the cyclone and splitter is carried out and the hole is thoroughly flushed at the end of each sample. RC and diamond drilling by previous operators to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core and chip samples have been logged by qualified Geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion holes logging were carried out on a metre by metre basis and at time of drilling. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging is Qualitative and Quantitative and all core is photographed both wet and dry (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz alteration as percentages Selected RC chip trays are archived.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD – Core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived All major mineralised zones are sampled, plus associated visibly barren material, >5m of mineralised zones Ideally, sample intervals are to be 1m in length, though range from 0.3m to 4.0m in length. Total weight of each sample generally does not exceed 5kg Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. All samples are oven-dried overnight (max 1200), jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR. For older pre- NSR samples, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC - Rig-mounted static cone splitter used for dry samples. Pre NSR RC sub sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For older pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. For drill core the external labs coarse duplicates are used. RC drilling by previous operators to industry standard at the time. With new database protocol older QAQC data is being retrieved but was not reviewed at the time of this report.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e. other half of cut core, have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all NSR drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gram (or 50g depending on which lab was used) sample charge weight. An AAS finish is used, considered to be total gold Various multi-element suites are analysed using a four acid digest with an ICP-OES finish RC drilling by previous operators to industry standard at the time and not reviewed for this resource
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The QAQC protocols used include the following for all NSR drill samples: ▪ The field QAQC protocols used include the following for all drill samples: -Duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples, -Coarse blanks are inserted at an incidence of 1 in 30 samples, -Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 25 samples. The CRM used is not identifiable to the laboratory, -NSR's QAQC data is assessed on import to the database and reported monthly and yearly. ▪ The laboratory QAQC protocols used include the following for all drill samples: -Repeat analysis of pulp samples occurs at an incidence of 2 in 50 samples, -Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples, -The laboratories own standards are loaded to the NST database, -The laboratory reports its own QAQC data on a quarterly basis. ▪ In addition to the above, about 5% of samples are sent to an umpire laboratory. ▪ Failed standards are followed up by re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for Surface RC and diamond drilling by previous operators unknown, assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified
	The use of twinned holes.	There are no purpose twinned holes
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database, now replaced by SQL database and more automated data entry Hard copies of NSR core assays and surveys are kept at head office Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to Access initially , now SQL database
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any resource estimation. Some minor adjustments have been made to overlapping data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	NSR collar positions were surveyed using DGPS, and were set-out and picked-up in MGA 1994 Zone 50 grid. This information is digitally transferred to the geology database Multi shot cameras and gyro units were used for down-hole survey Previous drilling have been set-out and picked up in both national and local grids using a combination of GPS and Survey instruments, and are assumed to be to NST standards
	Specification of the grid system used.	MGA94 grid, zone 50
	Quality and adequacy of topographic control.	Topographic control is from the Fugro 2002 Aerial photo data and site surveyed pit pickups. Accuracy would be to 10cm within the pits.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing on the order of 20m by 10m in the shallow portions of the deposit. Up to 100m on the down plunge extents
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The resource development drilling over the deposit was generally 20m x 20m or better for the indicated resource and up to 50m x 50m for the inferred resource. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples in mineralised zones though it is unknown at what grade threshold the 1m sub-samples were analysed for. Compositing of the data to 1m was used in the estimate.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to Zoe shear zone mineralisation and slightly oblique to the main sedimentary beds and mineralisation. Steep topography as also affected the orientation of drilling. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented and all assays are returned via email. Sample pulp splits are returned to NSR via return freight and stored in shelved containers at the Paulsens mine site Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There has been no audit of the sampling techniques, however all recent NST sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be light on in regards to QAQC though in line with industry standards of the time

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	M52/639 is wholly owned by NSR (Northern Star Resources Limited) and in good standing. There are no heritage issues with the current operation. Relationship with the traditional owners is good, though contact has become very limited. Several heritage surveys have been completed and there are no heritage issues with the current planned pit extents.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	M52/639 granted for 25/11/1996 for 21 years
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this resource was predominantly collected by SIPA who operated the Mt Olympus mine from start up to closure, previous to the NSR purchase. Gold mineralisation was discovered in 1988 by BP minerals. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Mount Olympus is a medium grade, structurally-controlled, sediment hosted epigenetic gold deposit. Mineralisation is hosted mainly by thick tensional quartz veins cross cutting bedding parallel shears.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many (692) holes to practically summarise all drill information used. (See diagram). The detail is available in the Dec 2012 Resource Report
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Not Applicable. Exploration results previously released

Criteria	JORC Code explanation	Commentary
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Not Applicable. Exploration results previously released
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results previously released by NSR, do include an estimate of true thickness
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results previously released with downhole depth and estimated true thickness.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See long section in main release and previous ASX releases (18/2/2011, 27/9/11, 2/12/11, 6/3/12, 12/3/12,1/7/12, 26/7/12, 27/8/12, 10/9/12, 7/2/13). Plan view and long section view of Mt Olympus showing drill collars is attached.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	When previously reported by NSR, exploration results do include all intersections for the period / area
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Exploration results not being released at this time
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	A program of 13,000m (both RC and Diamond) is currently on hold, primarily due to current gold price and focus on other projects. This drilling would aid a pit optimization, test for free milling (oxide) extensions, test deeper plunge extensions and test high grade underground targets. A Metallurgical test study is also currently on hold.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of main announcement

Section 3 Estimation and Reporting of Mineral Resources

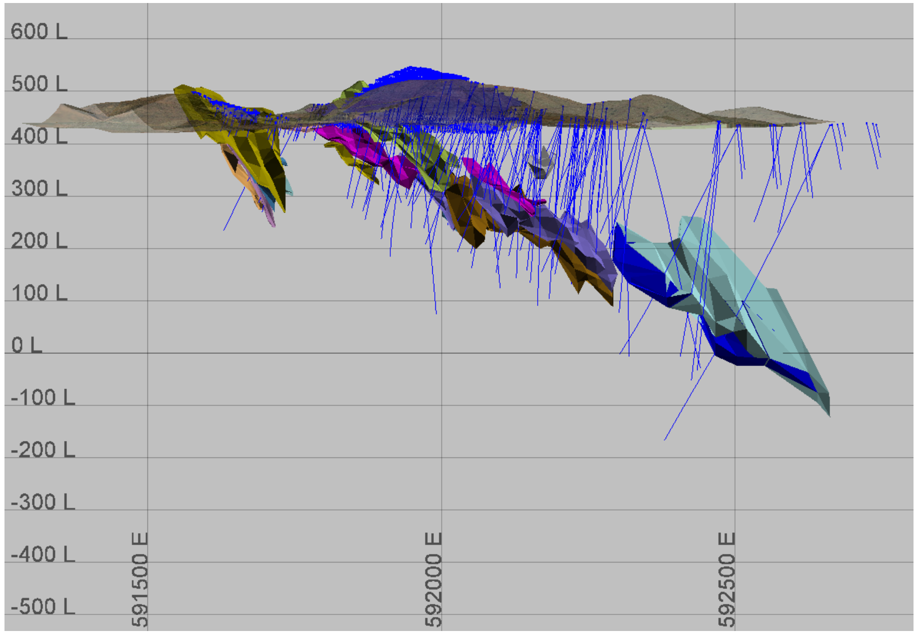
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	NSR (Northern Star Resources Limited) sampling and logging data is digitally entered into OCRISS then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre NSR data considered correct, has been maintained by SIPA company database administrators
	Data validation procedures used.	Pre NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person for this resource report has worked on site for extensive periods between 2012 and 2013.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan software. The confidence in the geological interpretation is high with all the information and 5 years of open pit operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.

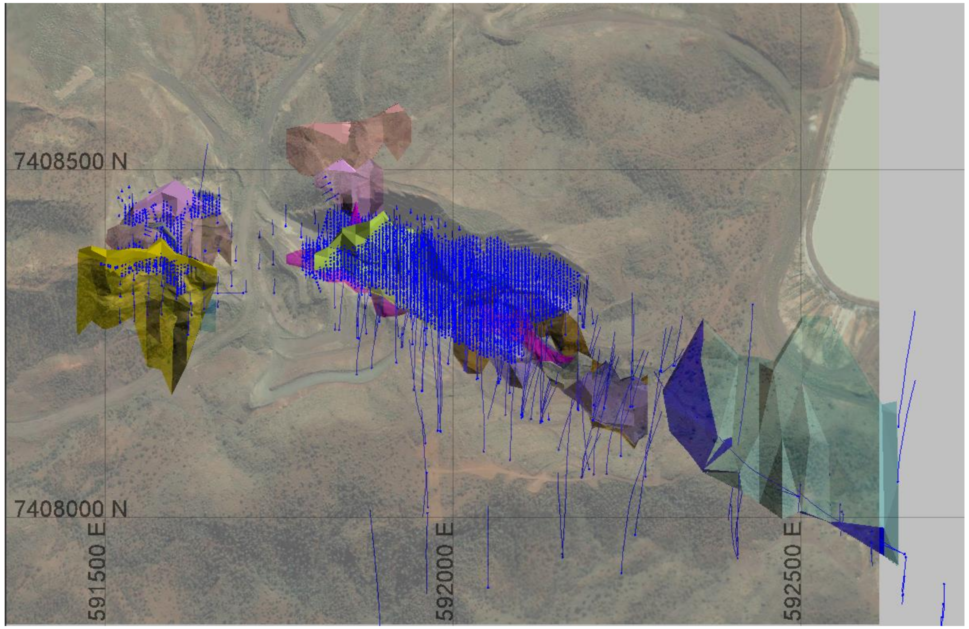
Criteria	JORC Code explanation	Commentary
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and pit development data used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade closely follows sedimentary bedding planes, particularly the coarser grained units.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Strike length = 800m (east – west) Width = 200m (North-south) Depth = surface to -90mRl (~500m below surface
Estimation and modelling techniques.	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Compositing of drill-hole samples was completed against one mineralised domain at 1m (downhole) intervals. The ordinary kriging interpolation (OK) method was used in the first 2 passes of the estimation. A final nearest neighbour method was used to fill empty blocks. 73% of blocks were estimated in the first 2 passes Maximum distance of extrapolation from data points was statistically determined and varies by domain Vulcan software was used for data compilation, domain wire framing, calculating and coding composite values and reporting. Block model volumes were compared to wireframe volumes to validate sub-blocking
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from open pit operations is comparable with new estimate
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size is 10m (Y) x 10m (X) x 10m (Z), with sub-block to 1.25m x 1.25m x 1.25m Average sample spacing is 20 by 20 or better for the main part of the resource, up to 20m by 40m on the peripheries.
	Any assumptions behind modelling of selective mining units.	A 3m minimum mining width for both the surface and underground environment is assumed.
	Any assumptions about correlation between variables.	In the fresh material there is a correlation between the Au grade and the bulk density measurement (see bulk density section)
	Description of how the geological interpretation was used to control the resource estimates.	"Ore" wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top Cuts were determined by statistical techniques and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades are assessed against drill hole data visually, by using swath plots and de-clustered means
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 0.7gpt Modelling lower grade cut off = 0.5gpt nominally.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The resource has been created on the basis of open pit and underground mining methods.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The metallurgical conditions and characteristics of the Mount Olympus mineralisation are generally known with free milling material mined by Sipa from within oxide zones. Fresh mineralisation is refractory in nature with its high pyrite content and fine gold at times locked within this matrix. Local areas of graphite rich mineralisation have in certain cases preg-robbing properties Initial test work has shown favorable results, more detailed studies are required. No Metallurgical assumptions have been built into the resource model
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Mt Olympus was a going concern and as such the previous practice have shown to be effective and practical.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk density for oxide and transition material was assumed due to the low number of measurements within these zones.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	A total of 4440 bulk density measurements from 30 diamond drill holes have been taken from mineralised and unmineralised intervals within the project area.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific geological units and weathering states. In fresh material, a correlation between the bulk density valve and gold assay grade exists and was used to assign bulk density values.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The resource classification is based primarily on the geological and grade continuity as shown by drilling (open pit Grade control data not considered) If a wireframe has been constructed with geological or grade continuity, all block within the wireframe are assigned as inferred Assignment of the indicated resource category was done on each ore zone individually using a number of different criteria including - continuity of both grade and geology - drill holes density - number of passes to fill the blocks and - Quality of the estimate (kriging efficiency). The halo (non wire framed material) is assigned a resource category of inferred if it is within the inferred wireframe and the block is filled in the first pass.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining operations
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral resource has been subjected to a review by Northern Star Resources' senior technical personal. The process and validation of Mineral Resource estimates was undertaken by an independent consultant from Optiro.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered as robust and representative of the Mount Olympus mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Mt Olympus and West Olympus ore zones and are likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Mount Olympus (including West Olympus) and the MTO_resource_jan2013 block model is favourable with reported reconciled production of 2.5mt @3gpt for 242koz (Mining cut-off grade is variable but assumed to be 0.7gpt when mined for stockpiling). At 0.7 gpt lower cut-off and 92% recovery the block model reports 2.8mt @ 3.0gpt for 243,000koz



Long Section – MtOlympus with drillhole traces and mineralised domains. Grade contol holes shown, but not used for estimation



Plan View – MtOlympus with drillhole traces and mineralised domains. Grade contol holes shown, but not used for estimation

NORTHERN STAR RESOURCES LIMITED

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported ore reserve is based on a previous resource model by SIPA Exploration (mt_olympus_geoogy25_0304).
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore reserves
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No specific site visit was undertaken by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Familiarity with the region and a review of satellite imagery and surveyed topography was considered sufficient information to provide the Reserve Estimate.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Pre Feasibility Study level
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Yes
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Break even cut off of 1.6 gpt applied, based ultimate pit shells, modified for mining practicalities, and expected operating costs, revenue and recoveries.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Whittle shells initially then fully designed pit shapes
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Deemed appropriate
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.	Geotechnical parameters based on historical mining at Ashburton. Bench height- 5m, Batter angle 55^0, Berm width 4m
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	mt_olympus_geoogy25_0304 used for pit optimisations, oxidised and transitional material only.
	The mining dilution factors used.	10%
	The mining recovery factors used.	95%
	Any minimum mining widths used.	One of the major limitations of pit optimisation packages is that an optimisation cannot be run with defined practical minimum mining widths and as such it is possible, when looking at deposits that have been previously mined, to end up with a pushback that is so small that it could not physically be mined. As such, optimisation results must be further analysed to understand the practicality of the results.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Only measured and indicated blocks are used.
	The infrastructure requirements of the selected mining methods.	Camp, workshop, office, water bores, ROM pad.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Assumed that material will be trucked and processed in the Paulsens Mill. Fresh material recovery was set to 0% to exclude it from the Estimate pending further study. Oxide recovery was estimated at 90%, transitional recovery at 80%.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for oxide and transitional. Fresh rock processing studies proposed though currently on hold.

Criteria	JORC Code explanation	Commentary
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	5 years processing experience of Ashburton ore by SIPA. The metallurgical domaining is applied through modelled oxidation surfaces though internally can vary due to sulphide content.
	Any assumptions or allowances made for deleterious elements.	No
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Previously mined and milled Mt Olympus pit.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Yes
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Ashburton (Mt Olympus/Peake/Zeus) is currently compliant with all legal and regulatory requirements. To the best of the Competent Person's knowledge, there is no reason to assume any government permits and licenses or statutory approvals will not be granted within expected timeframes
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	There is currently no infrastructure in place at the Ashburton tenement apart from access roads. The Ashburton site will require an accommodation camp, power station, road upgrades, offices and mining workshop. No processing plant or related infrastructure will be required. It is expected that Mt Olympus will carry all infrastructure costs
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	The capital cost estimate is used to provide current costs suitable for use in assessing the economics of the Ore Reserve. The capital cost estimate for the infrastructure is based upon an EPC (Engineering, Procurement and Construct contract) approach.
	The methodology used to estimate operating costs.	The operating cost estimate has been prepared on the basis of contractor mining. The operating costs have been provided by a mining contractor based on the material movement requirements. Site based processing costs from Paulsens to the planned expanded 450kt/a processing facility
	Allowances made for the content of deleterious elements.	No, none expected
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Revenue was based on a gold price of USD $1600
	The source of exchange rates used in the study.	AUD to USD in late December 2011
	Derivation of transportation charges.	Mining and Haulage costs are based on contractor estimates and first principle calculations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on historical processing data from the plant at Paulsens
	The allowances made for royalties payable, both Government and private.	WA State Govt. royalty of 2.5%
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	AUD to USD exchange rate conversion of 1.00
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Revenue was based on a gold price of USD $1600 (which is seen as representative of current economic forecasts for the period)
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	All product is sold direct at market prices with no hedges in place
	A customer and competitor analysis along with the identification of likely market windows for the product.	N/A
	Price and volume forecasts and the basis for these forecasts.	N/A
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A

Criteria	JORC Code explanation	Commentary
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the plant and quotes from experienced mining contractors. The economic forecast is seen as representative of the current market condition.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	NPV Scheduler pit optimisations were run using gold prices of A$1,750/oz, A$1,600/oz and A$1,450/oz at the model cut-off grade of 1.6 gpt. At $1600 it results in a NPV of A$M14.2
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	Project will have a negative NPV with lower gold price
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	As this project has been mined in recent history it is anticipated that all necessary required government approvals will be obtained in a timely fashion Presently there are three areas of immediate concern. These items are significant due to the potential for timing implications. These items include: • Existing compliance/status with DMP environmental branch (e.g. rehabilitation commitments; ecologies; soil/AMD) • Additional investigations/surveys needed Currency of former Operating Permits (i.e. Works Approvals)
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	None, Indicated and Measured blocks only used.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve has been prepared and peer reviewed by an independent consultant and is in line with current industry standards
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the reserve is high based on current industry practices and costs. The oxide material for which the reserve is based on and the operating parameters of the Paulsens Mill has a high confidence. Further drilling and metallurgical test work will be required to include any of the sulphide material into a reserve
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Global estimates.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	N/A
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Mount Olympus (including West Olympus) and the SIPA model used show a very good comparison to tonnes and reasonable comparison to grade.2.5Mt @ 3/gt produced vs 2.6Mt @ 3.4 modelled.

NORTHERN STAR RESOURCES LIMITED

JORC Code, 2012 Edition – Table 1 Report: Peake – As at Dec 31 2012

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by diamond drilling (DD) and Reverse Circulation (RC) drilling completed by NSR (Northern Star Resources Limited) and previous operators. NSR – DD. Sampled sections are generally NQ2. Core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.5m in length. NSR - RC - Rig-mounted static cone splitter used with the aperture set to yield a primary sample of approximately 4kg for every metre (representing approximately one eighth of the total sample). Off-split retained. RC and DD sampling by previous operators to industry standard at that time often using 1m samples after initial 4m composites. It is unknown what grade threshold triggers the 1m re-samples.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and surface core drilling completed by previous operators to industry standard at that time (1988 initial discovery, to 2004).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.5m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NSR (Northern Star Resources Limited) diamond core samples are fire assayed (50g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC – Reverse circulation drilling is carried out using a face sampling hammer and a 5¼ inch diameter bit NSR surface diamond drilling carried out by using both HQ3 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	NSR diamond drilling practice results in high recovery due to the competent nature of the ground. For RC drilling, efforts are made to ensure good recoveries are achieved by the use of auxiliary compressors and high pressure booster units supplying compressed air at a high enough pressure to keep water from the hole and the samples dry in most circumstances. Where water is encountered in the pre-collar and wet samples result, more frequent cleaning of the cyclone and splitter is carried out and the hole is thoroughly flushed at the end of each sample. RC and diamond drilling by previous operators to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core and chip samples have been logged by qualified Geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion holes logging were carried out on a metre by metre basis and at time of drilling. Surface core and RC logging completed by previous operators assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging is Qualitative and Quantitative and all core is photographed both wet and dry (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz alteration as percentages Selected RC chip trays are archived.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD – Core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived All major mineralised zones are sampled, plus associated visibly barren material, >5m of mineralised zones Ideally, sample intervals are to be 1m in length, though range from 0.3m to 4.0m in length. Total weight of each sample generally does not exceed 5kg Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. All samples are oven-dried overnight (max 1200), jaw crushed to <6mm, and split to <3kg in a static riffle splitter. The coarse reject is then discarded. The remainder is pulverised in an LM5 to >85% passing 75µm (Tyler 200 mesh) and bagged. The analytical sample is further reduced to a 30gm charge weight using a spatula, and the pulp packet is stored awaiting collection by NSR. For older pre- NSR samples, best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC - Rig-mounted static cone splitter used for dry samples. Pre NSR RC sub sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 105°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The very few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. No formal heterogeneity study has been carried out or nomograph plotted. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For older pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	For RC drilling, duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples. Repeat analysis of pulp samples (for all sample types – diamond, RC, rock and soil) occurs at an incidence of 2 in 50 samples. For drill core the external labs coarse duplicates are used. RC drilling by previous operators to industry standard at the time. With new database protocol older QAQC data is being retrieved but was not reviewed at the time of this report.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e. other half of cut core, have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all NSR drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gram (or 50g depending on which lab was used) sample charge weight. An AAS finish is used, considered to be total gold Various multi-element suites are analysed using a four acid digest with an ICP-OES finish RC drilling by previous operators to industry standard at the time and not reviewed for this resource
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.

Criteria	JORC Code explanation	Commentary
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The QAQC protocols used include the following for all NSR drill samples: ▪ The field QAQC protocols used include the following for all drill samples: -Duplicate samples are taken from the cone splitter at an incidence of 1 in 25 samples, -Coarse blanks are inserted at an incidence of 1 in 30 samples, -Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 25 samples. The CRM used is not identifiable to the laboratory, -NSR's QAQC data is assessed on import to the database and reported monthly and yearly. ▪ The laboratory QAQC protocols used include the following for all drill samples: -Repeat analysis of pulp samples occurs at an incidence of 2 in 50 samples, -Screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 100 samples, -The laboratories own standards are loaded to the NST database, -The laboratory reports its own QAQC data on a quarterly basis. ▪ In addition to the above, about 5% of samples are sent to an umpire laboratory. ▪ Failed standards are followed up by re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for Surface RC and diamond drilling by previous operators unknown, assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified
	The use of twinned holes.	There are no purpose twinned holes
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NSR data was hard keyed or copied into excel spreadsheets for transfer and storage in an access database, now replaced by SQL database and more automated data entry Hard copies of NSR core assays and surveys are kept at head office Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to Access initially , now SQL database
	Discuss any adjustment to assay data.	No adjustments are made to any assay data. First gold assay is utilised for any resource estimation. Some minor adjustments have been made to overlapping data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	NSR collar positions were surveyed using DGPS, and were set-out and picked-up in MGA 1994 Zone 50 grid. This information is digitally transferred to the geology database Multi shot cameras and gyro units were used for down-hole survey Previous drilling have been set-out and picked up in both national and local grids using a combination of GPS and Survey instruments, and are assumed to be to NST standards
	Specification of the grid system used.	MGA94 grid, zone 50
	Quality and adequacy of topographic control.	Topographic control is from the Fugro 2002 Aerial photo data and site surveyed pit pickups. Accuracy would be to 10cm within the pits.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing on the order of 20m by 20m in the shallow portions of the deposit. Up to 200m by 200m on the down plunge extents
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.
	Whether sample compositing has been applied.	Core is sampled to geology; sample compositing is not applied until the estimation stage. RC samples initially taken as 4m composites to be replaced by 1 m samples in mineralised zones though it is unknown at what grade threshold the 1m sub-samples were analysed for. Compositing of the data to 1m was used in the estimate.

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to mineralisation. Steep topography may also have affected the orientation of drilling. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented and all assays are returned via email. Sample pulp splits are returned to NSR via return freight and stored in shelved containers at the Paulsens mine site Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There has been no audit of the sampling techniques, however all recent NST sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be light on in regards to QAQC though in line with industry standards of the time

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	M52/734 is wholly owned by NSR (Northern Star Resources Limited) and in good standing. There are no heritage issues with the current operation. Relationship with the traditional owners is good, though contact has become very limited. A new heritage survey will be required for further deep drilling and pit expansions.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	M52/734 granted 9/5/2001 for 21 years
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this resource was collected by Sipa who operated the Mt Olympus mine from start up to closure, previous to the NSR purchase. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Peake is a medium grade, structurally-controlled, sediment hosted epigenetic gold deposit. Mineralisation is hosted mainly within in a vertical, bedding parallel shear zone.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many (408) holes to practically summarise all drill information used. (See diagram). The detail is available in the Dec 2012 Resource Report
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Not Applicable. Exploration results previously released
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Not Applicable. Exploration results previously released
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported

Criteria	JORC Code explanation	Commentary
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results previously released by NSR, do include an estimate of true thickness
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Drill hole angle to orientation of mineralisation is perpendicular to 45 degrees at most.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results previously released with downhole depth and estimated true thickness.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See previous ASX releases (18/2/2011, 27/9/11, 2/12/11, 6/3/12, 12/3/12,1/7/12, 26/7/12, 27/8/12, 10/9/12, 7/2/13). Plan view and long section view of Peake area collars and all drill traces used is attached.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	When previously reported by NSR, exploration results do include all intersections for the period / area
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Exploration results not being released at this time
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	A program of 11,000m (both RC and Diamond) is currently on hold, primarily due to current gold price and focus on other projects. This drilling would aid a pit optimization, test for free milling (oxide) extensions and test deeper plunge extensions A Metallurgical test study is also currently on hold.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of main announcement

Section 3 Estimation and Reporting of Mineral Resources

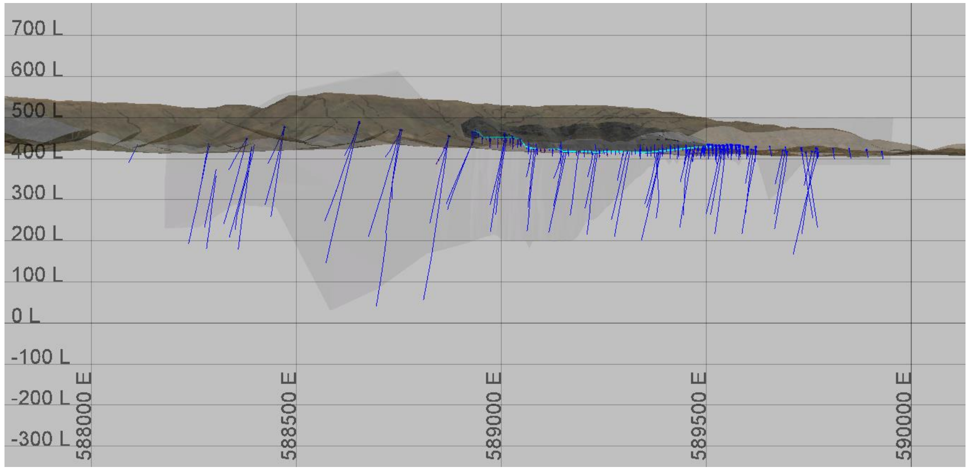
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	NSR (Northern Star Resources Limited) sampling and logging data is digitally entered into OCRISS then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre NSR data considered correct, has been maintained by Sipa company database administrators
	Data validation procedures used.	Pre NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The competent person for this resource has worked on site for extensive periods between 2012 and 2013.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan software. The confidence in the geological interpretation is high with all the information and several years of open pit operation.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and pit development data used to create 3D constrained wireframes.

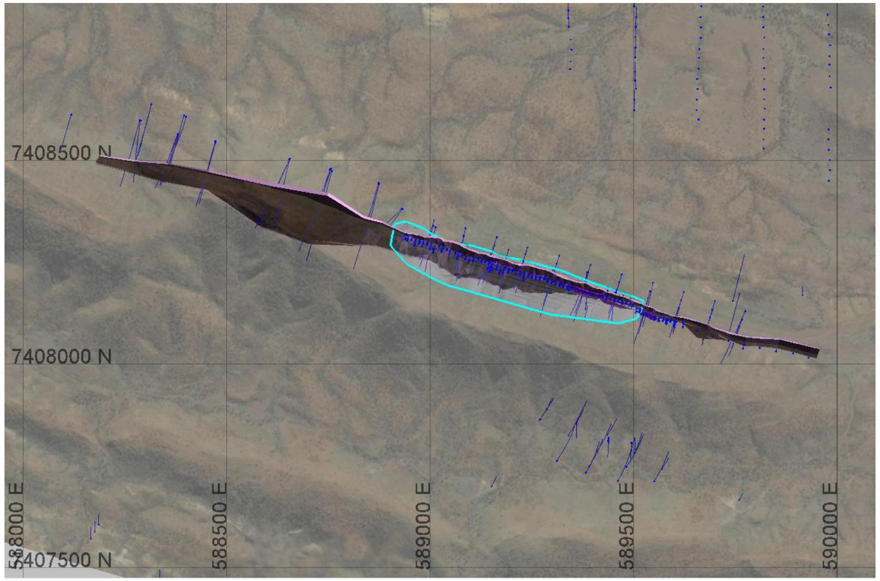
Criteria	JORC Code explanation	Commentary
	The factors affecting continuity both of grade and geology.	Mineralisation is hosted within shallower south dipping siltstones of the Mount McGrath formation. Its true width is approximately 2 to 4 metres and is very continuous along strike. Mineralisation is easily identifiable in the pit as a strongly foliated pale cream siltstone that is carbonate, silica and sericite altered. The siltstone may contain ex-pyrite as well as primary sulphides at depth. Gold is generally found within stringers and veinlets of quartz within this zone. There is a sharp grade cut-off on the hangingwall side of the structure and it is marked by a change into a more hematite-rich siltstone. The grade boundary is more diffuse on the footwall side of mineralisation.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Strike length = 1850m (east – west) Width = 5-10m (North-south) Depth = surface to 50mRl (~450m below surface)
Estimation and modelling techniques.	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Compositing of drill-hole samples was completed against one mineralised domain at 1m (downhole) intervals. The ordinary kriging interpolation (OK) method was used in the first 2 passes of the estimation. A final nearest neighbour method was used to fill empty blocks. 99.3% of the blocks were filled in the first 2 passesMaximum distance of extrapolation from data points was statistically determined and varies by domain Vulcan software was used for data compilation, domain wire framing, calculating and coding composite values and reporting. Block model volumes were compared to wireframe volumes to validate sub-blocking
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from open pit operations is comparable with new estimate
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size is 16m (Y) x 8m (X) x 8m (Z), with sub-block to 1m x 0.5m x 0.5m Drill hole spacing varies from 5m to 200m Average sample spacing is 40 by 40 or better for the main part of the resource, up to 40m by 120m on the peripheries.
	Any assumptions behind modelling of selective mining units.	A 3m minimum mining width for both the surface and underground environment is assumed.
	Any assumptions about correlation between variables.	N/A
	Description of how the geological interpretation was used to control the resource estimates.	"Ore" wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by statistical techniques and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Three validation processes were used to compare the block model against drill-hole data, including visual, declustered means and Swath plots.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 0.9gpt Modelling lower grade cut off = 0.5gpt nominally.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed that the surface portion of the resource will be mined via conventional surface mining techniques (diesel excavator and haul truck). Mining of the underground portion of the resource has been assumed to be via conventional underground mining technique.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The metallurgical conditions and characteristics of the Peake mineralisation are generally known with free milling material mined by Sipa from within oxide zones. Fresh mineralisation is refractory in nature with its high pyrite content and fine gold at times locked within this matrix. Initial test work has shown favorable results, more detailed studies are required. No Metallurgical assumptions have been built into the resource model
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	Peake was a going concern and as such the previous practice have shown to be effective and practical.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Specific Gravity (SG) or Bulk Density measurement data were conducted on diamond core samples from the Peake deposit. A total of 898 Specific gravity measurements were taken from 12 NST drill core. The method used was the submersion technique as stated in procedure IMS-EXP_SWP_XXX Specific Gravity Procedure (see Appendix 4). The majority of the specific gravity measurements were conducted on fresh material. Fresh unmineralised material was given SG of 2.95 given as a result of NST SG measurement at Peake and MT Olympus (similar geology). The average SG given to fresh mineralized material (inside ore wireframes) was 3.10. This is due to the increase in heavy sulphide minerals (pyrite). For transitional material a conservative Specific Gravity measurement of 2.75 was used taking into account SG's from current data, previous resource models and Mount Olympus which has similar geology. For oxide material a conservative SG of 2.65 was given. This takes into account current data and previous resource models and reconciled data from mining the open pit
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	A total of 899 bulk density measurements from 12 recent diamond drill holes have been taken from mineralised and unmineralised intervals within the project area.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific geological units and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The resource classification is based primarily on the geological and grade continuity as shown by drilling (open pit Grade control data not considered) If a wireframe has been constructed with geological or grade continuity, all block within the wireframe are assigned as inferred Assignment of the indicated resource category was done on each ore zone individually using a number of different criteria including - continuity of both grade and geology - drill holes density - number of passes to fill the blocks and - Quality of the estimate (kriging efficiency). The Halo (non wire framed material) is assigned a resource category of inferred if it is within the inferred wireframe and the block is filled in the first pass.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining operations
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is considered representative with comments noted in the discussion below.

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral resource has been subjected to a review by Northern Star Resources' senior technical personal. The process and validation of Mineral Resource estimates was undertaken by an independent consultant from Optiro.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered as robust and representative of the Peake mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Peake ore zones and are likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Peake and this the Peake_resource_final Mar_2013 block model is favourable with reported reconciled production of 0.08mt @ 7gpt for 15koz (Mining cut-off grade is variable but assumed to be 0.9gpt). At 0.9 gpt lower cut-off and 92% recovery the block model reports 0.08mt @ 6.4gpt for 15.8koz.



Long Section7408250N looking north – Peake with drillhole traces and mineralised domains. Grade contol holes shown, but not used for estimation. Current Peake pit extents shown in light blue



Plan View – Peake with drillhole traces and mineralised domains. Grade contol holes shown, but not used for estimation. Current Peake pit extents shown in light blue

NORTHERN STAR RESOURCES LIMITED

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported ore reserve is based on a previous model by MPR Geological consultants in February 2012
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore reserves
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No specific site visit was undertaken by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Familiarity with the region and a review of satellite imagery and surveyed topography was considered sufficient information to provide the Reserve Estimate.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Pre Feasibility Study level
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Yes
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Break even cut off of 1.6 gpt applied based on expected operating costs, revenue and recoveries
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Whittle shells initially then fully designed pit shapes
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Deemed appropriate
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.	The geotechnical parameters used in the optimisation and design were taken from the existing pits. Mining ceased in 2001 after a project duration of nearly three years. During this period and up to the present time, the walls have stood up well. For this reason it was decided that the same parameters be used in the proposed cutbacks. Bench height- 10m, Batter angle 55^0, Berm width 3m Overall slope angles are 45^0
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	MPR 201202 Peake model. Used for pit optimisations, oxidised and transitional material only.
	The mining dilution factors used.	10%
	The mining recovery factors used.	95%
	Any minimum mining widths used.	One of the major limitations of pit optimisation packages is that an optimisation cannot be run with defined practical minimum mining widths and as such it is possible, when looking at deposits that have been previously mined, to end up with a pushback that is so small that it could not physically be mined. As such, optimisation results must be further analysed to understand the practicality of the results
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Only measured and indicated blocks are used.
	The infrastructure requirements of the selected mining methods.	Camp, workshop, office, water bores, ROM pad will be part of nearby Mt Olympus project
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Assumed that material will be trucked and processed in the Paulsens Mill. Fresh material recovery was set to 0% to exclude it from the Estimate pending further study. Oxide recovery was estimated at 90%, transitional recovery at 80%.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for oxide and transitional. Fresh rock processing studies proposed though currently on hold.

Criteria	JORC Code explanation	Commentary
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	5 years processing experience of Ashburton ore by SIPA. The metallurgical domaining is applied through modelled oxidation surfaces though internally can vary due to sulphide content.
	Any assumptions or allowances made for deleterious elements.	No
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Previously mined and milled Peake pit.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Yes
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Ashburton (Mt Olympus/Peake/Zeus) is currently compliant with all legal and regulatory requirements. To the best of the Competent Person's knowledge, there is no reason to assume any government permits and licenses or statutory approvals will not be granted within expected timeframes Northern Star has commissioned 'Significant Environmental Services' to assist with the approvals process which is continuing.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	There is currently no infrastructure in place at the Ashburton tenement apart from access roads. The Ashburton site will require an accommodation camp, power station, road upgrades, offices and mining workshop. No processing plant or related infrastructure will be required. It is expected that Mt Olympus will carry all infrastructure costs
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital cost to be carried by the Mt Olympus project
	The methodology used to estimate operating costs.	The operating cost estimate has been prepared on the basis of contractor mining. The operating costs have been provided by a mining contractor based on the material movement requirements. Site based processing costs from Paulsens to the planned expanded 450kt/a processing facility
	Allowances made for the content of deleterious elements.	No, none expected
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Revenue was based on a gold price of USD $1600
	The source of exchange rates used in the study.	AUD to USD in late December 2011
	Derivation of transportation charges.	Mining and Haulage costs are based on contractor estimates and first principle calculations.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on historical processing data from the plant at Paulsens
	The allowances made for royalties payable, both Government and private.	WA State Govt. royalty of 2.5%
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	AUD to USD exchange rate conversion of 1.00
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Revenue was based on a gold price of USD $1600 (which is seen as representative of current economic forecasts for the period)
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	All product is sold direct at market prices with no hedges in place
	A customer and competitor analysis along with the identification of likely market windows for the product.	N/A
	Price and volume forecasts and the basis for these forecasts.	N/A
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the plant and quotes from experienced mining contractors. The economic forecast is seen as representative of the current market condition.

Criteria	JORC Code explanation	Commentary
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	NPV Scheduler pit optimisations were run using gold prices of A$1,750/oz, A$1,600/oz and A$1,450/oz at the model cut-off grade of 1.6 gpt. At $1600 the NPV is A$M5.7
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	Project will have a negative NPV with lower gold price
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	As this project has been mined in recent history it is anticipated that all necessary required government approvals will be obtained in a timely fashion Presently there are three areas of immediate concern. These items are significant due to the potential for timing implications. These items include: • Existing compliance/status with DMP environmental branch (e.g. rehabilitation commitments; ecologies; soil/AMD) • Additional investigations/surveys needed • Currency of former Operating Permits (i.e. Works Approvals)
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve has been prepared and peer reviewed by an independent consultant and is in line with current industry standards
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the reserve is high based on current industry practices and costs. The oxide material for which the reserve is based on and the operating parameters of the Paulsens Mill has a high confidence. Further drilling and metallurgical test work will be required to include any of the sulphide material into a reserve
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Global estimates.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	N/A
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation comparison between the previously mined Peake and this the Peake_resource_final Mar_2013 block model is favourable with reported reconciled production of 0.08mt @ 7gpt for 15koz (Mining cut-off grade is variable but assumed to be 0.9gpt). At 0.9 gpt lower cut-off and 92% recovery the block model reports 0.08mt @ 6.4gpt for 15.8koz.

JORC Code, 2012 Edition – Table 1 Report: Plutonic Gold Mine – June 30 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Over its history this deposit has been sampled using numerous drilling techniques by NSR (Northern Star Resources Limited) and previous operators. This is assumed to be to industry standard at that time. Currently diamond drilling (DD) and face sampled sections have sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1m in length. Sampling of NQ2 and LTK60 is half core. BQ and LTK48 is sampled as full core. Face chip sampling is completed perpendicular to the lode orientation in the face.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Core is aligned to orientation markers and measured by tape, comparing back to down hole core blocks consistent with industry practice. All other sampling by previous operators is assumed to be to industry standard at that time.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1m) based on geological intervals, which are then crushed and pulverised to produce a ~250g pulp sub sample for use in the assay process. NSR (Northern Star Resources Limited) diamond core samples are fire assayed at ALS and the Plutonic Fire Assay Lab (PFAL) facility on site (40gm charge). Visible gold is occasionally encountered in core. Underground face chip samples follow the same process. All other sampling by previous operators assumed to be to industry standard at that time.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Over its history this deposit has been drilled and sampled using numerous techniques by NSR (Northern Star Resources Limited) and previous operators. This is assumed to be to industry standard at that time. Underground diamond drilling carried out by using BQ, NQ2, LTK48 and LTK 60. Core is orientated using the Reflex ACT device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Chip sample recoveries not relevant in this instance. No RC drilling has taken place for a number of years at Plutonic and impact on the resource would be minimal. DD recovery is not noted specifically, though core is locked in and meter marked carefully. Discrepancies to core blocks are brought up with the drill contractor. Occasionally core loss blocks are inserted. Overall drill core recovery is very good.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	NSR diamond drilling practice results in high recovery due to the competent nature of the ground. RC and DD by previous operators assumed to be to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade; diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core and chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. Surface core and RC logging completed by previous operators assumed to be to industry standard at that time.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative and all core is photographed. Visual estimates of sulphide (percentage) and alteration (intensity scale) are recorded. A significant archive is found on site containing previous drilling, sampling and core photography where available. Previous logging assumed to be to industry standard at that time.
	The total length and percentage of the relevant intersections logged.	100% of NSR drill core is logged. Faces are mapped and sampled when access permits.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	BQ or LTK48 core was sampled as full core and dispatched to the laboratory for analysis. NQ2 or LTK60 core was cut in half with an Almonté diamond core saw; the top half of the core was sent to the laboratory for analysis and the other half was placed back in the core tray, transferred onto pallets, and moved to the core yard library.

Criteria	JORC Code explanation	Commentary
		All other core sampling by previous operators assumed to be to industry standard at that time.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Non-core drilling by previous operators assumed to be to industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 110°C Samples are crushed and split down to <1kg, 80% < 3.15mm using Essa Jaw crusher and 50:50 riffle splitter or Boyd rotary crusher and 50:50 rotary splitter at the labs discretion. Primary samples ~500g pulverised to 90% passing 75µm in LM2. Use scoop to subset to ~200gm, use scoop to subset to 40gm for fire assay. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Crusher duplicates taken at 1:45 (Plutonic lab)/1:50 (ALS) for core and 1:20 for face chips Pulp duplicates taken at 1:45 (Plutonic lab)/1:26 (ALS) for core and 1:20 for face chips
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, i.e. other half of cut core, have not been routinely assayed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all NSR drill core and face samples, gold concentration is determined by fire assay using the lead collection technique with a 40gm sample charge weight. An AAS (Plutonic lab) or ICP (ALS) finish is used, and is considered to be total gold. All other laboratory procedures exercised by previous operators assumed to be to industry standard at that time and not reviewed for this resource.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	QAQC protocols and performance for Underground data The field QAQC protocols used include the following for all drill samples: - Coarse blanks are inserted at an incidence of 1 in 40 samples, after visible gold, and after suspected high grade samples. - Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 20 samples. The CRM used is not identifiable to the laboratory. - NSR's QAQC data is assessed on import to the database and reported monthly and quarterly. The laboratory QAQC protocols used include the following for all drill and face samples: - Crusher duplicates taken at 1:45 (Plutonic lab)/1:50 (ALS) for core and 1:20 for face chips, - Pulp duplicates taken at 1:45 (Plutonic lab)/1:26 (ALS) for core and 1:20 for face chips, - Sizing checks are performed at all stages of prep (80% passing < 3.15mm for coarse crush, 90% passing 75µm for pulps) are undertaken on 1 in 40 samples, The laboratories own standards are loaded to the AcQuire database, The laboratory reports its own QAQC data on a monthly basis. In addition to the above, about 5% of samples are sent to an umpire laboratory. Failed standards are followed up by re-assaying a second 40g pulp sample of all samples in the fire if failing low, and samples above 0.5ppm if failing high. This is completed by the same method at the primary laboratory. Both the accuracy component (CRM's and umpire checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for surface RC and DD by previous operators (Barrick) thoroughly documented and of high standard.
	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections verified by alternative company personnel.

Criteria	JORC Code explanation	Commentary
Verification of sampling and assaying	The use of twinned holes.	There are no recent purpose twinned holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Drill and face logging is completed electronically onto laptops. Database protocols and rules are applied upon data entry. Visual validation and check logging of face and drill data. Drill data is stored in an AcQuire database, face data in an Acquire and Fusion databases (previously Mine Mapper). All maintained on site by NSR Assistant Database Administrator. All face and drill data within site databases are regularly validated using both internal database systems and external validation tools. Pre-NSR data has been maintained by NSR Assistant Database Administrators. Validation of pre NSR data is completed periodically.
	Discuss any adjustment to assay data.	Conversion of lab non-numeric code to numeric for estimation.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	UG hole collar locations picked up regularly by site surveyors Multi shot cameras are used for down-hole survey Development faces are spatially located using MineMapper and Vulcan 3D software Underground development picked up as required in a working mine. Stopes voids are generally all surveyed by CMS (where practical and safe to do so). In 2010, an independent gyro check survey of the underground workings showed very good correlation.
	Specification of the grid system used.	Drilling collared underground is drilled on the localised (POL) Grid. Rotated 3° west from AMG. The elevation datum used for underground has 1,000 metres added in order to eliminate the possibility of negative RLs at a later stage of mining. Two point conversion from AMG to POL Point 1 AMG N7197660.681, E745533.6 POL N10850.28, E 4122.20 Point 2 AMG N7198362.518 E746350.229 POL N11594.561 E4899.96
	Quality and adequacy of topographic control.	Local topography and pits surveyed by mine site survey department. Accuracy would be to within 10cm and is continually updated in light of pit backfill and infrastructure modifications.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	No exploration results reported. All reported exploration results by previous operators assumed to be to industry standard at that time.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Face samples in combination with drilling determine measured material. This allows for interpretation and data spacing based on underground exposure and development cut length. Average drill spacing is approximately 20m by 20m or better for the main areas of the resource, allowing indicated classification. Spacing increases up to 160m by 80m on the peripheral areas, which falls into inferred classification. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied, with known likelihood of local variability.
	Whether sample compositing has been applied.	The drill core is logged and divided into sample intervals that have a minimum sample length of 0.3m and a maximum sample length of 1.0m. Intervals should honour geological boundaries such as faults and lithological contacts. Most nominal sample lengths were at 1m intervals; sample compositing is not applied until the estimation stage. No recent RC drilling undertaken. Compositing of the data to 1m was used in the estimate.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Targets drilled perpendicular where possible. However, orientation to lode may be compromised by access to suitable drill platforms. Drillholes are extended to Mine Mafic boundary where required and practicable. Face sampling is orientated perpendicular to lode orientation. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.

Criteria	JORC Code explanation	Commentary
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All cut drill core is kept in an unfenced core farm adjacent to the core cutting and processing shed. This is not regarded as a security risk due to the remote location of the mine with no community development near the mine. All core is photographed and records kept electronically. Geologists' are responsible for marking the sample intervals and placement of Blanks and Standards within the sampling stream for both faces and core. The Project Geologist and Senior Geologist complete quality control checks on the face data daily. Field Staff are primarily responsible for the collection of samples from the face as chips, as well as the cutting and sampling of core. Also generating the sample numbers for core submission, creating a sample submission sheet for core and faces, randomly selecting and recording the standards to be sent to the laboratory and the transportation of the samples to the laboratory. Once a hole has been sampled, the sample calculation and check geology documents are handed to the Assistant Database Administrator who converts the digital copy of the sample calculation to a .csv file which is then imported into the AcQuire database. Upon receiving the digital file for the assay data, the DBAs import the file into the master AcQuire database. This data is not accessible for assessment until it has been validated as complete and correct by the QAQC Geologist and DBA. Face data is received in the same format but is entered into the AcQuire or Fusion Database instead. Pulp rejects from assayed samples are kept in wooden boxes on top of the waste dump. These are visited frequently as samples are taken for research and other purposes. Drill logs are kept in hard copy and electronically and are available for checking and due-diligence.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Previous review by Roscoe Postle Associates concluded the sample preparation, analysis, and security are adequate for Mineral Resource estimation.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	Mining Leases - M52/0148, M52/0149, M52/0150, M52/0170, M52/0171, M52/0222, M52/0223, M52/0263, M52/0264, M52/0289, M52/0295, M52/0296, M52/0300, M52/0301, M52/0308, M52/0309, M52/0591, M52/0592 and Miscellaneous Licences – L52/40, L52/41, L52/48, L52/52, L52/54, L52/55, L52/56, L52/70, L52/71, L52/74 are still held in the name of two Barrick entities. The Sale and Purchase Agreements and Transfers are awaiting Duty Assessment by the Office of State Revenue. Once this assessment is complete the tenement title transfers to NST will be lodged at the DMP. NST does not foresee any issues with title transfers. Mining Leases M52/253, M52/395, M52/590, M52/670, M52/671, M52/672 acquired under a Sale and Purchase Agreement from Dampier (Plutonic) Pty Ltd in February 2016 have been assessed for Duty by the Office of State Revenue and Transfers of Title to NST were lodged with DMP on 22 July 2016 There are no heritage issues with the current operation. All Leases are held in good standing.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Mining Leases M52/0148, M52/0149, M52/0150, M52/0170, M52/0171, M52/0222, M52/0223, M52/253, M52/0263, M52/0264, M52/0289, M52/0295, M52/0296, M52/0300, M52/0301, M52/0308, M52/0309, M52/395, M52/590, M52/0591, M52/0592, M52/670, M52/671, M52/672 are all granted for the next 1 – 19 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Gold mineralisation was discovered in 1987 by Great Central Mines, with numerous companies exploring and mining prior to Northern Star Resources Limited. All previous work is accepted and assumed to industry standard at that time. Full history of exploration, development and mining documented in technical report.

Criteria	JORC Code explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	The gold deposits at Plutonic are hosted by an Archaean greenstone sequence and occur mainly as a multiple lode system with variable dip (horizontal to vertical) hosted almost exclusively by a mafic amphibolite sequence that are referred to as the 'Mine Mafic'. Mineralization regularly occurs as shallowly dipping, layer parallel lodes, although steep lodes and minor quartz-vein hosted deposits also occur. Mineralization at Plutonic is characterized by a series of moderately-dipping to very flat-lying, stacked replacement-style lodes, individually up to five metres wide, that are hosted within ductile shear zones, oriented slightly oblique to stratigraphy.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Exploration results not being released at this time.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Not Applicable. Exploration results previously released.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Not Applicable. Exploration results previously released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results not being released at this time. Future exploration results will be released with downhole depth and estimated true thickness.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results not being released at this time. Future exploration results will be released with downhole depth and estimated true thickness.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	No significant discovery as only a resource and reserve update for active mining areas. All relevant diagrams contained within available technical documentation.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results not being released at this time. Future exploration results to include all intersections for the period / area.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Exploration results not being released at this time.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Underground grade control and extensional drilling programs are underway, and will continue in line with mine development and production requirements.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Part of main technical documentation

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Drill and face logging is completed electronically onto laptops. Database protocols and rules are applied upon data entry. Drillhole logging undergoes check logging on an ad hoc basis. Pre NSR data considered correct, has been maintained by NSR company Assistant Database Administrators. Validation of Pre NSR data is completed periodically.
	Data validation procedures used.	All face and drill data within site databases are regularly validated using both internal database systems and external validation tools. Visual validation and check logging of face and drill data.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person based on site.
	If no site visits have been undertaken indicate why this is the case.	Competent Person based on site.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan software. The confidence in the geological interpretation is high with all the information and over 20 years of open pit and underground operation used in the generation of the models.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation, including drilling and mapping.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward outside those at drive and stope scale that will impact the global resource.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and mapping used to determine domaining and influence search orientations and distances.
	The factors affecting continuity both of grade and geology.	Mineralization regularly occurs as shallowly dipping, layer parallel lodes, although steep lodes and minor quartz-vein hosted deposits also occur. Due to the discontinuity of mineralisation due to geological features/structures, actual measured lengths of individual lodes have been used to establish continuity. This is preference to variography which demonstrated potential search distances well beyond know lode extents.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Main Mining Area Strike length = 4,150m (north - south) Width = 3,000m (east - west) Depth = surface to 325mRL (~1,200m below surface) Plutonic East Strike length = 3,000m Width = 1,500m (North-south) Depth = surface to 733mRL (~750m below surface)
Estimation and modelling techniques.	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Drillhole and face sample compositing was completed against geological boundaries to 1m. Reflecting sample size. Top cut values are selected using a lognormal probability plot. Other factors considered when selecting the top cut values are: the lithology, coefficient of variation after top cutting, impact on average grade, sample locations and metal lost. Once a suitable top cut is determined it is applied to the assays prior to compositing. In addition to the capping of high grade assays prior to compositing, some Plutonic block models use a high yield exclusion/threshold technique to avoid the impact of high grade values having a disproportionate effect on blocks beyond a reasonable distance. Composites greater than the selected threshold values are restricted to a smaller search ellipse. This technique is only used in the Measured estimation run. Inverse distance interpolation method was used for all estimation passes utilizing tetra surfaces for each domain, or oriented searches where not suitable.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
		No models were completed using ordinary kriging or variography (excluding Baltic Extended). This is because the known geological conditions do not match the search distances derived from the variograms. Classification is determined based on data type and density. Measured material is restricted to immediately around drive locations. Known geological conditions then used to determine indicated search distances, with the final inferred search double the indicated search. *Estimation and modeling techniques unique to Timor, Pacific and Caspian estimations;* • 1m composite capped high grades based on lithology. • Indicator estimation run to define mineralization triangulations. Inverse distance interpolation method used to estimate grade within triangulations with search orientations defined per domain. • Classification defined by which pass a block is estimated. *Estimation and modeling techniques unique to Baltic Extended estimation;* • Individually wire framed lode interpretations. • Minimum and maximum number of samples, and search ranges (ellipses) were determined by variography. Maptek Vulcan software is used to conduct all modelling and estimation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Updates are compared to previous estimates with variances validated against data, interpretation, estimation changes and mining depletion.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size is 10m (Y) x 10m (X) x 10m (Z), with sub-block to 1m x 1m x 1m. Timor, Pacific and Caspian estimation parent block size is 6m (Y) x 6m (X) x 6m (Z), with 1m x 1m x 1m within mineralized zones, all sub-block to 0.5m x 0.5m x 0.5m. Average drill spacing is 20m x 20m or better for the main areas of the resource, up to 160m by 80m on the peripheral areas. Measured search parameters horizontally are restricted to four metres to allow at least two face samples to influence the grade estimation of a block. For each particular sub-domain within the resource area, the average centre line to centre line between ore development drives was estimated. Half of this average distance is then selected as the lode dip search length. Z search distance across strike is limited by interpreted lode geometry. Indicated search parameters are determined by measuring the length of the individual lodes from hard copy plans of backs mapping or mapping completed digitally using visualization software. The cumulative value at the 80th percentile was determined and half this length was used as the Indicated search length for the major and semi-major axes. Z search distance remains the same. Inferred search is set at double the indicated search distance. Z search distance remains the same. Baltic Extended estimation parent block size is 10m (Y) x 10m (X) x 10m (Z), with 1m x 1m x 1m within mineralized zones, all sub-block to 0.25m x 0.25m x 0.25m. Four passes were run to ensure blocks were populated with Au grades. Combination of search ellipses and Vulcan Tetra were used during the estimate, depending on the geometry of the modelled lodes. Minimum and maximum number of samples, and search ranges (ellipses) were determined by performing variography of the dataset.
	Any assumptions behind modelling of selective mining units.	A 1.5m minimum mining width for underground environment is assumed.
	Any assumptions about correlation between variables.	No assumptions are made about correlation between variables for estimation.
	Description of how the geological interpretation was used to control the resource estimates.	Estimations are constrained by Mine Mafic and Dolerite interpretations. Search orientations closely related to Mine Mafic orientation. Fault surfaces and dolerites used as domain boundaries as required. Use of lithology during grade capping and as indicators for estimation of Timor, Pacific and Caspian areas, to create mineralized wireframes. Baltic Extended estimation was within 170 individually modelled narrow lodes shapes with each lode treated as an individual domain.

Criteria	JORC Code explanation	Commentary
	Discussion of basis for using or not using grade cutting or capping.	Top cuts are applied to constrain the influence of outlier grades during grade estimation, and are determined by statistical techniques and vary by domain. Top cuts are derived by examining the gold values at the upper end of the distribution on a lognormal probability plot. Other factors considered when selecting the top cut values are: the lithology, coefficient of variation after top cutting, impact on average grade, sample locations and metal lost.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades are assessed against previous models and drill hole and face data visually, by using swath plots and grade tonnage curves. Comparisons are made within mining shapes to localised grade control models. Given the localised geological complexity, high spatial variability and significant amount of material mined outside of reserve (>50% of ounces), reconciliation of ounces to declared ore mined can be of limited value.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Underground moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut-off varies for each resource area. This is derived using calculation based on mining, process and G&A costs, recovery, metal price and selling costs. Current cut-off grades utilize 2015 mining costs against 2016 resource gold price of $AUD1,700/oz. Full calculations are documented in the site cut-off grade report.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Mineral Resource has been created on the basis of the currently employed underground mining methods.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	The metallurgical conditions and characteristics of the Plutonic underground mineralisation are generally known. No Metallurgical assumptions have been built into the Mineral Resource model.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Plutonic underground operation is a going concern and as such the previous practice have shown to be effective and practical.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density is determined from drill core using a weight in air/weight in water method. Samples are taken from every 5th hole. Currently there is a database of over 3,800 bulk density measurements which have been taken from mineralised and unmineralised intervals, with an ongoing sampling program in place.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Samples of between 0.5 and 2.0kg are weighed in air and weighed in water. The following equation is used to derive bulk density Bulk Density = $Wd\ /\ (Wd - Ww)$
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	For the purposes of estimating Mineral Resources, a global bulk density of 2.9 t/m^3 was applied to all models, with the exception of Plutonic East and Area 4, which uses 2.8 t/m^3.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Mineral Resources are classified to reflect the confidence in the grade estimation and geology. This confidence is a reflection of the search strategy and the number of composites used to estimate grade, coupled with an examination of the geological continuity of the deposit and other factors including database integrity, geological interpretation, and estimation techniques. Classification approach is currently under review to consider number of drillholes/faces used and mean distance to samples. Baltic Extended classification defined by drill hole spacing, interpreted geological and grade continuity. Timor, Pacific and Caspian classification defined by which pass a block is estimated.

Criteria	JORC Code explanation	Commentary
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining operations.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered globally representative of the Plutonic underground deposit. It is acknowledged that localised variability is likely. The Mineral Resource reported at a gold price of AUD$1,700 per ounce utilising MY2015 operating costs, as per NSR corporate guidance. Resource reporting utilises Vulcan Stope Optimiser, creating individual stopes shapes above the applicable resource zone cut-off grade using a standard X:5m x Y:5m stope dimension with a variable Z dimension (5-20m). *Note: To provide better correlation to block size, Plutonic East stope dimensions were increased to 8x8x2*. All resource material is reported from within each shape, excluding depletion and sterilisation. This process allows for the reporting of material closer to that which has a reasonable prospect of economic extraction. As a continuation of the stope optimiser process improvement from 2013, Plutonic Gold Mine is now utilising a depletion factor for reporting resources. It was identified through a recent engineering study that resource reported utilising the stope optimiser method may be overstating material within the vicinity of stoping and development. The most accurate, but time consuming approach to remove this material is a visual assessment of each stope optimiser shape by an engineer to determine its mining potential. This has previously taken approximately 2 months. To expedite this process, this previous work complete by Barrick Mining Services Engineering has been used as a basis for creating depletion factors for remaining resource based on the percentage of MY2013 resource removed. *Example*: Baltic Resource area Review isolated the impact of removing ounces associated with mining. Categories such as 'isolated' and 'inaccessible' remain due to their potential if the gold price were to rise further. The percentage of ounces removed due to 'mining' and 'pillars' was used to generate the factor and then applied by determining remaining resource when compared against current reporting methods.

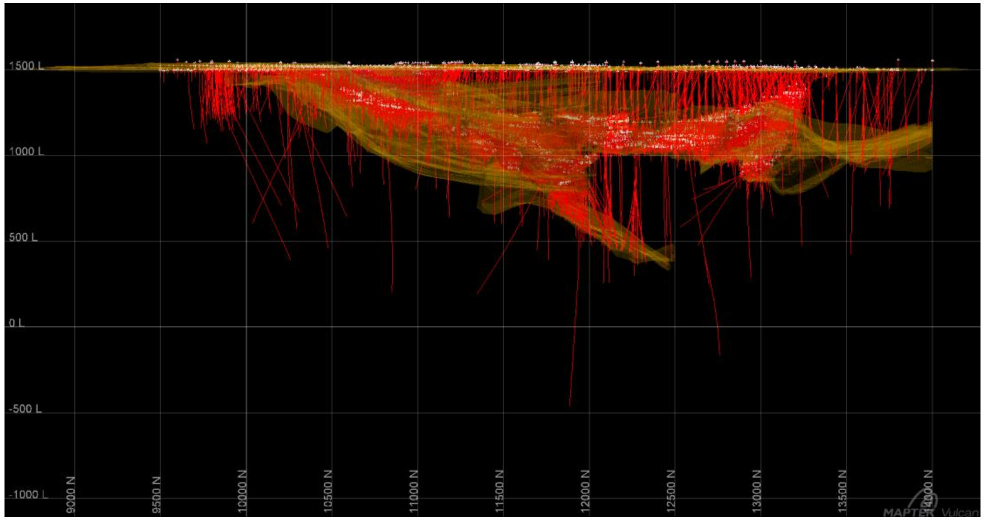
Baltic Resource Area

Category	Ounces
Initial Resource	**190,427**
Mined Resource	**-74,540**
Below Site wide RCOG	0
Pillars	**-2,839**
Isolated	-25,091
Inaccessible	-21,727
Reserve - MY2013	-2,483
Uneconomic - MY2013	-1,481
Unmineable - MY2013	-461
Remaining High potential	**61,955**

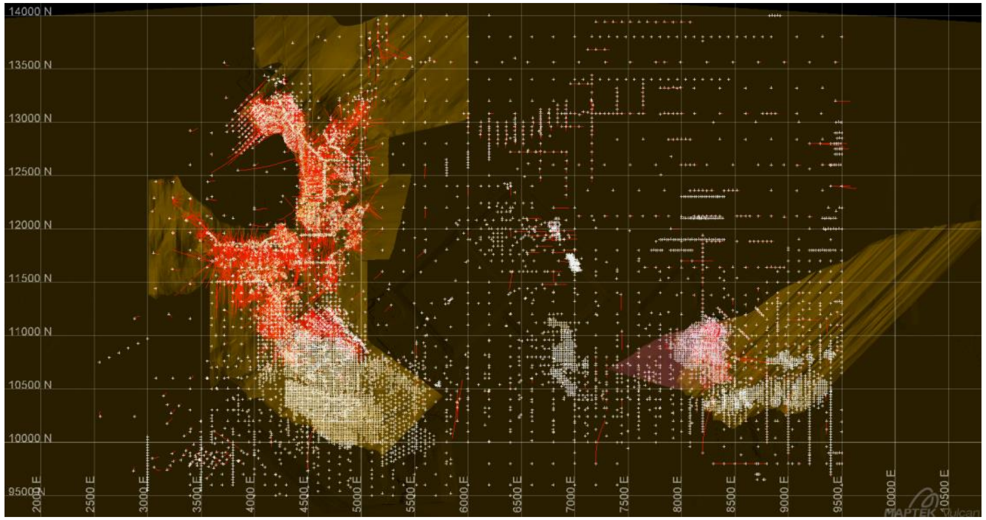
Initial Resource	**190,427**
Mined Resource	-74,540
Pillars	-2,839
Remaining High Potential	**113,048**
Remaining	59%
Removed (**DEPLETION**	**41%**

Criteria	JORC Code explanation	Commentary
		This process is being revisited as part of an updated review of all mining areas, with Zone 124: Spur - Area 134 the initial focus prior to MY2015 resource reporting.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral resource has been subjected to reviews by Northern Star Resources' senior technical personnel. Audit of the process and validation of Mineral Resource estimates was undertaken by independent consultants from Roscoe Postle Associates. Concluding the Mineral Resource was estimated in a manner consistent with industry practices and meets the requirements of NI 43-101.

Criteria	JORC Code explanation	Commentary
		During April 2015, a review of the mineral resource process was undertaken by Optiro. This review put forward several key recommendations to improve the estimation process, - Implement the use of octant searches to reduce the impact of the clustered channel data. - Implement the categorical indicator estimation of mineralised blocks within all Resource estimates in order to domain the mineralisation. - Increase the size of the parent blocks to 2.5m x 2.5m x 2.5m in all estimations & estimate at the parent block scale. - Review and update estimation parameters applied to all estimations. - Classification approach to be reviewed and updated to consider number of drillholes/faces used and mean distance to samples. All review recommendations are currently undergoing testing to determine appropriateness and impact on the Plutonic Resource. Coombes Capability reviewed the most recent Baltic Extended resource update, which concluded the estimate follows good industry practice. There were two areas highlighted as worthy of further examination to improve the reliability of the Baltic Extension resource model for the purposes of mine planning: - Improve the analysis and communication of data quality - Improve local estimation to aid mine planning
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered globally representative of the Plutonic underground deposit. It is acknowledged that localised variability is likely. As mining progresses throughout all resource areas domains, search orientations and tetra surfaces are updated to reflect new knowledge. Block estimates are compared to input data, both visually and statistically. Reporting techniques utilising stope optimiser tools to more closely represent material with a reasonable prospect of economic extraction increases confidence in the resource tonnes, grade and ounces reported. Acknowledging the stope optimiser method may be overstating material within the vicinity of stoping and development, depletion factors are utilised when reporting resources. The most accurate, but time consuming approach to remove this material is a visual assessment of each stope optimiser shape by an engineer to determine its mining potential. This has previously taken approximately 2 months. To expedite this process, previous work complete by Barrick Mining Services Engineering has been used as a basis for creating depletion factors for remaining resource based on the percentage of MY2013 resource removed.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to all resource areas within the Plutonic underground mining operations and is likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Given the localised geological complexity, high spatial variability and significant amount of material mined outside of reserve (>50% of ounces), reconciliation of ounces to declared ore mined can be of limited value. However, globally the estimates are considered to be an accurate representation of resource ounces. Resource models are used as a primary source of mine extension targets.



Long Section – Plutonic Underground with drillhole traces and mineralised domains. Surface grade contol holes shown, but not used for estimation



Plan View – Plutonic Underground with drillhole traces and mineralised domains. Surface grade contol holes shown, but not used for estimation

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported ore reserve is based on updated or depleted resource models or grade control models for all areas of Plutonic Underground.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral resources are reported inclusive of ore reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Several site visits have been undertaken by the Competent Person and these have involved detailed review and assessment of site generated mining designs that form the basis of the Ore Reserve. Reviews resulted in a portion of previous Ore Reserve estimates based on the global resource models being removed from the Ore Reserve category as well as the generation of new life of mine (LOM) model and economic assessment.
	If no site visits have been undertaken indicate why this is the case.	Not applicable as site visits have occurred.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Mineral Resource and Ore Reserve update
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Currently an operating mine, and all resource / reserve work has been conducted on ore zones either within or adjacent to current mine workings (i.e. they are not subject to any further feasibility type study level).
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Cut-off grades vary for each resource zone. This is derived using calculation based on historical mining, processing and G&A costs, and incorporates future projections of any major consumable cost increases, metallurgical recovery, metal price and selling costs. Full calculations are documented in the 2015 MY cut-off grade report. Cut-off grades range from 2.99 gpt to 3.98 gpt.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves are identified, individually designed and then evaluated using economic parameters as derived from the latest cut-off grade revision. No new or untested techniques were incorporated.

Criteria	JORC Code explanation	Commentary
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Based on mining techniques and methodologies currently in use at the operation.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Plutonic has built up a large knowledge base of geotechnical characteristics and observations, which have led to the establishment of the existing mining practises. These practises are mirrored in the creation of the reserve blocks.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The main assumption made revolves around there being no significant deviation from current mining techniques and methodologies. Three general mining methods have been applied: 1. Longhole retreat – this is the predominant method used. Stope dimensions vary with the specific block being mined, but generally range from 4-22m in height, with widths varying from 2-15m. 2. Jumbo stripping – used where ore zones are shallow dipping and limited in extent to the length of a jumbo steel (3.5m) 3. Airleg mining – used for high grade, narrow lenses and occasionally as exploration ventures where the local geology is not well-defined. Mining height ranges from 1.8-3.0m.
	The mining dilution factors used.	All Ore Reserves planned on the Mineral Resource models as long hole retreat and jumbo stripping have a mining dilution factor of 15% which is the average dilution between 2013 and 2015. All Ore Reserves planned on the Mineral Resource models as air leg mining have been given a 5% dilution factor. All advanced planning shapes have been given dilution factors based on localised mining performance.
	The mining recovery factors used.	All Ore Reserves planned on Mineral Resource Models as long hole retreat have a mining recovery factor of 91% which is the average recovery between 2013 and 2015. All Ore Reserves planned on Mineral Resource Models as Jumbo stripping and air leg mining have a 95% recovery factor. All advanced planning shapes have been given recovery factors based on localised mining performance.
	Any minimum mining widths used.	Minimum mining width of 1.8m is applied to all Reserves.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Only stoping blocks with less than 30% Inferred Resource is classified as an Ore Reserve. Total percentage of Inferred Resource ounces in Reserves = 1%
	The infrastructure requirements of the selected mining methods.	All key infrastructure required is currently in place within the underground mine. This includes access declines, ventilation shafts and associated primary fans, service provision (air, water, and power), fuel bays, crib room, workshops, and offices.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The metallurgical process is currently in place and the associated historical metal recoveries have been applied to the different ore types. The current process has been in place since 1990, and is deemed as appropriate for the mineralisation.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for surface and underground ore (in use since 1990).
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Plutonic has been in operation since August 1990. The metallurgical response of the various ore zones is therefore based on historical operating data and specific metallurgical test work undertaken for selected resource zones. This is the case for all zones reported in the mineral reserve. The zones are geographical in nature and are defined by their mineralogy. The recoveries used to estimate gold recovery by zone are: • Indian (NW Lodes) - 81.9% • Caspian (NW Lodes) - 81.9% • Baltic (Zone 19) - 94.0% • Caribbean (Zone 61) – 70.8% • Spur & Coral (Zone 124) – 88.8% • Cortez (Zone 124) – 88.8% • Timor (Zone 124N) – 93.5% • Pacific (Zone 124N) – 79.3% • Plutonic East – 84.3%
	Any assumptions or allowances made for deleterious elements.	Catered for in the recovery information for each zone. The presence of graphitic shale and high arsenopyrite material has an influence over the plant recovery performance.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	All reserve material is within previously mined and milled Plutonic ore zones and has associated historical performance characteristics as well as specific metallurgical test work undertaken for selected resource zones.

Criteria	JORC Code explanation	Commentary
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Plutonic operates under Department of Environment and Conservation (DEC) Licence L6868/1989/11 in accordance with the Environmental Protection Act WA 1986. Plutonic holds one groundwater licence; GWL 151450(6). The 2012 annual groundwater well licence production report indicates that the aquifers can support the current rate of extraction. Plutonic's mine closure plan has been developed in accordance with the DMP and EPA Guidelines for Preparing Mine Closure Plans June, 2011. The 2012 closure plan was submitted to the DMP and was approved on 5th September 2012.The mine closure plan details studies such as waste rock characterisation that are to be completed before closure of the site.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	All required infrastructure is in place.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs used were based on the existing site Life of Mine projection, and due to the existing short mine life only incorporate sustaining capital components. Refer to the 2015 MY cut-off grade report.
	The methodology used to estimate operating costs.	Historical operating costs for the 2015 period were used as a baseline. The revised costs were then compared to both historical and Life of Mine estimated costs to confirm their materiality. Refer to the 2015 MY cut-off grade report.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only, using a long-term gold price of AUD$1,500 per ounce as per NSR corporate guidance
	The source of exchange rates used in the study.	NSR report in Australian dollars. Therefore, no exchange rate is used or required
	Derivation of transportation charges.	All transportation charges are based on historical Plutonic operation costs. This cost component has been used to determine the cut-off grades. Refer to the 2015 MY cut-off grade report
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing and refining costs are based on historical Plutonic processing data. These cost components have been used to determine the cut-off grades. Refer to the 2015 MY cut-off grade report.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. This cost component has been used to determine the cut-off grades.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Single commodity pricing for gold only, using a long-term gold price of AUD$1,500 per ounce 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	NSR internal resource and reserve guidelines 2015. These are documented in emails and memos.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	The gold is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	N/A
	Price and volume forecasts and the basis for these forecasts.	N/A
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the mine and processing plant. The economic forecast is seen as representative of the current market condition.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of AUD$1,500 ± $200 per ounce. Costs are based on actual costs currently being incurred at the site. Due to the current short life, the project is not seen as highlight sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants

Criteria	JORC Code explanation	Commentary
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	None
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	As a current operation, all government approvals are in place. No impediments are seen in any of these agreements for the continuation of mining activities.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved and Probable classifications of which the Proved contains only Measured Resource and the Probable includes Indicated and a limited amount of Inferred Resource. The Ore Reserve shapes have been generated using practical mining constraints and this sometimes necessitates the inclusion of Inferred Resource. Inferred Resource contributes 1.5% of total reserves ounces. All advanced planning on planning block models (PBM) used for detailed planning purposes have been classified as Indicated Resource (Probable). All advanced planning on measured resource models (MRM) have been classified as Measured Resource (Proved).
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserves reporting processes has been subjected to an internal review by Northern Star Resources' senior technical personnel in April 2016. No official reports or procedures have been generated at this stage.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Historically, mine reconciliation reporting has shown that, when comparing the ore reserve estimation for a given period, to the actual material mined over that period, there is a poor correlation. This is attributed to the complex nature of the ore zones, and the additional information that is gathered between mineral reserve estimation and the final grade control modelling. The impact of this is that a significant portion of material is mined "outside" of reserves – historically greater than 50%. This implies that the reserves statements have underestimated the material that will be available for mining in a given period. In terms of the accuracy of the stated reserves, while a wide variation is experienced on a localised basis, when viewed on a global scale, the variation returns to acceptable levels.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Reserves are based on global resource models, planning block models (PBM) and measured resource models (MRM) which increase in accuracy from the former to the later. PBM and MRM are within the global resource models limits. 10.4% of tonnes and 13.1% of ounces are based on the global resource model. 72.4% of tonnes and 69.6% of ounces are based on the planning block models. 17.2% of tonnes and 17.3% of ounces are based on the measured resource models. All reserve components are subject to economic review and assessed in the LOM evaluation. The low portion of reserves associated with the global resource model is related to both the stage in mine life and the Baltic Extension being designed on the more detailed planning block model.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Other than dilution and recovery factors, no additional factors have been applied to the 2016 MY estimation.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historically, mine to mill reconciliation shows that approximately 50% of the ounces mined were outside reserve. As such, the in-mine declared Ore Mined compared to Ore Reserve reconciliation has limited value.

NORTHERN STAR RESOURCES LIMITED

JORC CODE, 2012 EDITION – TABLE 1 REPORT: HERMES – AS AT 30 JUNE 2015

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	This deposit is sampled by Diamond (DD) and Reverse Circulation (RC) drilling. Northern Star Resources (NST) diamond core sample intervals are defined by the geologist to honour geological boundaries. NST RC drilling sampled to 1m composites. pre NST diamond core is assumed to be sample to industry standards and to honour geological boundaries pre NST RC initially sampled to either 4m comps with any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites or as 1m composites.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	NST DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice RC drilling completed by previous operators, assumed to be to industry standard at the time.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	DD completed to industry standard using varying sample lengths (0.3 to 1.1m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. NST diamond core samples are fire assayed (50g charge). Fine grained free gold is encountered occasionally. pre NST- Alchemy/Troy RC sampling assumed to be industry standard at that time. NST RC sampling using mounted static cone splitter used for dry samples to yield a primary sample of approximately 4kg.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Surface RC drilling, 462 holes (~5.25" face sampling bit). Surface drill core, 32 holes (HQ2/HQ3). NST core was orientated using the Reflex Ez – Ori. pre NST orientated assumed to be to industry standard at the time.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For RC drilling, approximate recoveries are sometimes recorded as percentage ranges based on a visual weight estimate of the sample. For DD, recoveries are recorded as a percentage calculated from measured core versus drilled intervals. Overall recoveries are good.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC and diamond drilling by previous operators to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There has been no work completed on the relationship between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	NST RC chips and surface core logged by company geologists to industry standard. All relevant items such as interval, lithologies, structure, texture. Grains size, alterations, oxidation mineralisation, quartz percentages and sulphide types and percentages are recorded in the geological logs. RC and DD core logging completed by previous operators to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative, all core photographed, and visual estimates are made of sulphide, quartz alteration percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core and RC drilling chips were logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core sample intervals are generally between 0.3-1.1m in length, though honouring lithological boundaries to intervals less than 1m as deemed appropriate. NST - HQ3 core is half core sampled cut with Almonté diamond core saw. The right half is sampled, to sample intervals defined by the Logging Geologist along geological boundaries. The left half of core is archived.

Criteria	JORC Code explanation	Commentary
		All samples are oven-dried overnight (105ºC), jaw crushed to pass 3.15mm. The total sample is pulverised in an LM5 to 90% passing 75µm and bagged. The analytical sample is further reduced to a 50gm charge weight using a spatula and the pulp packet is stored awaiting collection by NST.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	NST employed a rig mounted static cone splitter used for dry samples to yield a primary sample of approximately 4kg. Off-split retained. NST field duplicate samples are taken at an incidence of 1 in 30 samples. pre NST RC initially sampled to 4m comps, any samples reporting > 0.1gpt were re-split and re-assayed as 1m composites and is assumed to be industry standard.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	There was no data available on pre NST sample preparation practices. It is assumed to be industry standard along with NST processes which are industry standard.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	NST standard QAQC procedures and previous owners are assumed as industry standard.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	The field QAQC protocols include duplicate samples at a rate of 1 in 30, coarse blanks inserted at a rate of 1 in 30, commercial standards submitted at a rate of 1 in 20. pre NST - Industry standard QAQC procedures are assumed to have been employed.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	DD core is half cut. Repeat analysis of pulp samples (for all sample types – diamond, RC) occurs at an incidence of 1 in 35 samples. Total gold is determined by fire assay using the lead collection technique (50 gm sample charge weight) and AAS finish. Various multi-element suites are analysed using a four acid digest with an ICP-OES finish. pre NST assay techniques were assumed to be industry standard
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The laboratory QAQC protocols include repeat of pulps at a rate of 3%, sizing at a rate of 1 per batch. The labs internal QAQC is loaded into NST database. Both the accuracy component (CRM's) and the precision component (duplicates and repeats) are deemed acceptable. Although no formal heterogeneity study has been carried out or nomograph plotted, informal analysis suggests that the sampling protocol currently in use is appropriate to the mineralisation encountered and should provide representative results. No check assaying at an umpire laboratory has been performed. Industry standard QAQC procedures are assumed to have been employed by pre NST operators
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections are verified by NST senior staff as required.
	The use of twinned holes.	There are no purpose drilled twin holes employed by NST or previous owners
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	NST data thoroughly vetted by database administrators. Data is stored in Acquire database has several inbuilt validations. pre NST data is accepted relevant practice of the time.
	Discuss any adjustment to assay data.	No adjustments are made to any assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	NST collar positions were surveyed using DGPS. pre NST collar position assumed to be of industry standard Topographic control uses local DGPS pickups.
	Specification of the grid system used.	MGA 94_50

Criteria	JORC Code explanation	Commentary
	Quality and adequacy of topographic control.	Topographic control is based on the collar surveys.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Exploration results are based on the Drill traces as attached.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Data spacing is approximately 20m by 20m.
	Whether sample compositing has been applied.	Drill core is sampled to geology; sample compositing is not applied until the estimation stage. NST RC samples were composited to 1m. Pre NST RC samples either initially taken as 4m composites and re-assayed by 1 m samples if assays >0.1gpt or directly composited to1m.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Intercept angles are predominantly moderate to high angle (50° to 80°) to the interpreted mineralisation resulting in unbiased sampling.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Unknown, assumed to not be material.
Sample security	The measures taken to ensure sample security.	Chain of custody is managed by NST. Samples are stored on site and are delivered to assay laboratory in Perth by Contracted Transport Company. Consignment notes in place to track the samples. pre NST operator sample security assumed to be adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	There have not been improved reviews of sampling techniques on NST drilling phases.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	Mining Lease M52/685 is wholly owned by Northern Star Resources (NST) and in good standing. Heritage surveys have been conducted and the area was cleared for drilling. Relationship with the traditional owners is well informed and adequate.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Mining Lease M52/685 is valid currently to 2030.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Pre NST data relevant to this resource was collected by Alchemy, Troy and Barrick (16 Diamond and 340 RC holes). All previous work is accepted to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Mineralisation at this deposit is considered to be mesothermal quartz reefs +/ pyrite, arsenopyrite within a quartz biotite sericite schist host rock near an amphibolite contact in the southwest portion of the Marymia Inlier.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Exploration results not reported at this time.

Criteria	JORC Code explanation	Commentary
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exploration results not reported at this time.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results not reported at this time.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results not reported at this time.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results not reported at this time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Geometry of the mineralisation to drill hole intercepts is at a high angle, often nearing perpendicular.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results not reported at this time.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See plan view of drill traces for Hermes and surrounding areas.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results not reported at this time.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Other Exploration results not considered material.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Follow up drilling to infill and extend is proposed but currently on hold.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	See attached plan view.

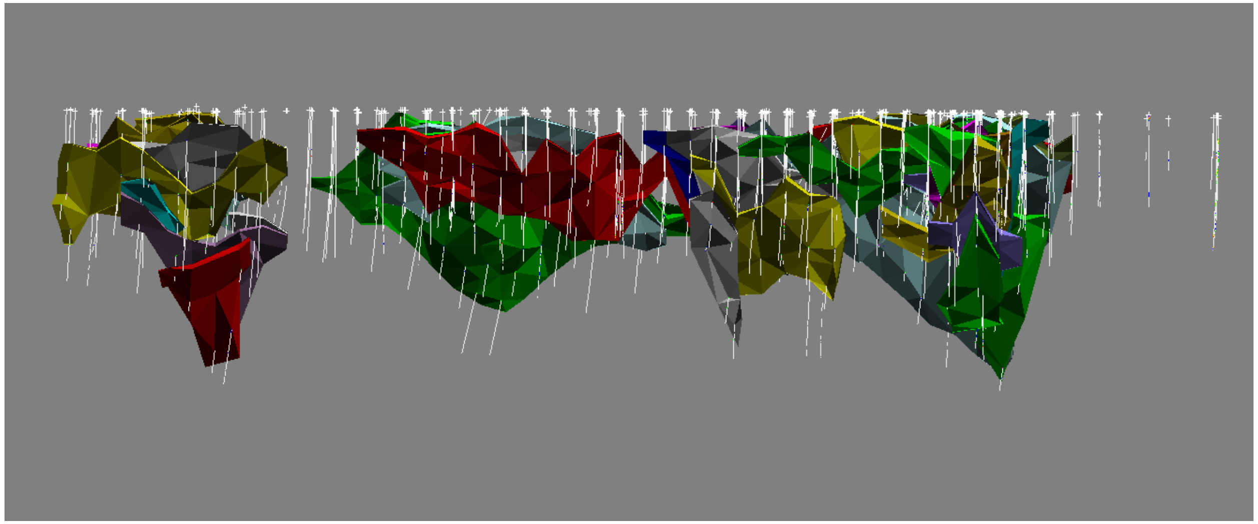
Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

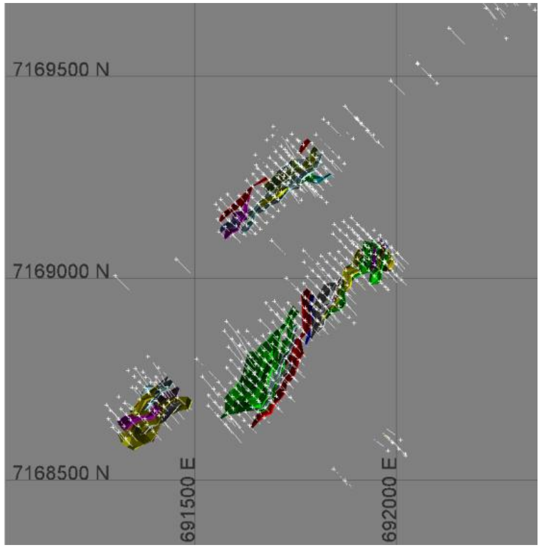
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is entered directly into the logging package Acquire. Constrained look-up lists, depth and some interval validation are inbuilt and ensure that the data collected is correct at source. Raw assay files were directly imported into Acquire, with internal validations and QAQC protocols used to check integrity. Pre Northern Star Resources Limited (NST) data assumed correct but no validation has been undertaken. For all data the drilling looked reliable visually and no overlapping intervals were noted.
	Data validation procedures used.	NST data validated by internal protocols within Acquire and by database administrators. Pre NST data has not been validated but is assumed to be correct. Four holes were excluded due to unrepresentative intercept angle.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken before and during drilling program by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Site visited.

Criteria	JORC Code explanation	Commentary
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology by the supervising and logging geologists. Sectional interpretations were digitized in Vulcan software and triangulated to form three dimensional solids. Confidence in the geological interpretation is moderate. Weathering zones and bedrock sub surfaces were also created.
	Nature of the data used and of any assumptions made.	All available valid data was used including drill data, mapping previous interpretations. NST drilled 128 of the 490 holes. Where pre-NST drill data was used it is assumed to be correct.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	There are currently no different interpretations.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology is used to constrain the quartz veins within the quartz biotite sericite schist host.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to quartz vein extent within quartz biotite sericite schist host.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Maximum Strike length = 600m with zones 40 to 350m long Maximum Width = 80m with zones 1 to 8m thick Maximum Depth = from surface to ~200m below surface
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Ordinary Kriging was used to estimate this resource using Vulcan 9.1 software. Domains are snapped to drilling, and composited to 1m downhole. Small composites were distributed to adjacent intervals. Five statistical domains were used to reflect the different orientations of mineralisation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	A resource was estimated in 2012. This resource reported all material greater than 0gpt, overstating the in-situ resource at the time.
	The assumptions made regarding recovery of by-products.	No assumptions of by product recovery are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 5m x 10m x 5m. Subcelled down to 1.25m x 2.5m x 1.25m to best fit estimation domains. Average drill hole spacing is ~ 20m Five search ellipse (3 for Trapper (50m x 40m x 20m, 55m x 50m x 20m, 45m x 35m x 25m), 1 for Hawkeye (50m x 45m x 20m) and 1 for Trapper West (55m x 25m x 20m)) were used over three passes. Minimum of 16 samples to estimate per block.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Composites were cut to 30gpt (Trapper and Trapper West) and 20gpt (Hawkeye) based on log distribution.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades were compared visually to drilling data. Validation is also through swath plots comparing composites to block model grades, along nothings, comparing Ordinary Kriging to Inverse distance to Nearest Neighbour estimations. All compared favourable.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated with natural moisture. Moisture content within the ore is expected to vary through the oxide to Fresh. Minimal voids reported within all rock types. Water table at approximately 30m below surface
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 1.0gpt based on natural statistical cut-off Modeling lower grade cut off = 0.5gpt nominally, not more than 3m of internal dilution and requires minimum 2 holes
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed Hermes will initially be mined by open cut mining methods, and quick evaluations support the economics. Below the economic pit depth, grades are high enough to potentially be mined by underground methods. Assumes the nearby Plutonic mill is available for processing and support infrastructure.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources	Four metallurgical diamond holes (PQ3) and 10 RC holes were drilled as a part of the NST metallurgical program. Initial leaching results suggest Hermes mineralisation is amenable to extraction by the Plutonic mill.

Criteria	JORC Code explanation	Commentary
	may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	No environmental, permitting, legal, taxation, socio-economic, marketing or other relevant issues are known, that may affect the estimate. Currently there is no permit to mine.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density used was based on 198 samples from 3 diamond holes. Measurements were taken using the immersion method and related back to dominant rock code. This validated previously reported bulk density measurement.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vughs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density of the host rock and mineralisation is well covered and validates previous bulk density work. Fourteen samples were used to determine an average bulk density of oxide, 8 for transitional host rock and 176 in fresh material.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on drill spacing, passes used and Kriging efficiency variable to delineate inferred and indicated resource. There is no Measured category.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Confidence in the relative tonnage and grade is moderate to high, NST data input reliable, interpretation continuity to be confirmed by infill drilling. Pre NST data assumed to be reliable.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The result appropriately reflects the Competent Person(s)' view of the deposit
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This particular resource has not been externally reviewed or audited
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered as robust and representative. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale. It relies on historical data being of similar standard as recent infill drilling. The relevant tonnages and grade are variable on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Hermes Gold Project where it is likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No Production has been conducted in or around this resource.



Long section - facing west, Hermes drilling



Plan View – Hermes drillhole collars

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve is based on updated Mineral Resource models for all areas of Hermes.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No site visit has been conducted by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person is satisfied that the descriptions of the planned infrastructure and locality provided by NSR along with the surveyed 3D topography are sufficient information to carry out the mine design and classify the Ore Reserves.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Pre-feasibility.
	The Code requires that a study to at least pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	As above.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Cut-off grades were determined based on unit costs provided by NST based on contractor quotes for previous design iterations.
Mining factors or assumptions	The method and assumptions used as reported in the pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pit. All open pit mining shapes include planned and unplanned dilution, being waste material that is located within the minable shape.

Criteria	JORC Code explanation	Commentary
		Open pit unplanned dilution has been modelled within the mining shapes as a skin of material likely to be taken additional to material considered to be the smallest mining unit (SMU). This method is considered to be appropriate given the expected ground conditions, orebody width and proposed mining style.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining methods for the Hermes deposit are of a bench mining open pit method. The proposed open pit is to be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120 t class excavators and 90 t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the mature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Pit wall angles are based on recommendations provided by Dempers & Seymour Pty Ltd geotechnical reviews.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	
	The mining dilution factors used.	Physicals are reported within the generated mining shapes for the open pit Ore Reserve. SMU shapes have been generated for the reporting of Reserve physicals. Dilution accounted for within the SMU is 27%; that is waste material carried within the mining shape.
	The mining recovery factors used.	Mining recovery is considered to be 100% of the SMU. The proportion of the resource above cut-off grade that falls within the SMU is 93%.
	Any minimum mining widths used.	The SMU dimensions for the Ore Reserve estimate are 2.0 m Wide x 5.0 m High x 5.0 m Long. A minimum mining width down to 20 m for final pit extraction from the base of pit has been used.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Ore Reserve estimate (treated as waste) but has been considered in LOM planning. It is assumed that Inferred material will be converted to Ore Reserve via grade control drilling which has been provided for and will be carried out ahead of mining.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Hermes Open Pit have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. As there is currently infrastructure in place for the Plutonic underground operations and the life of the project is limited planned infrastructure includes: • Offices, workshops and associated facilities; • Dewatering pipeline; • Access / Haul Road; • Waste Dump; and • RoM Pad. Processing will be conducted offsite at the Plutonic operation, hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Processing will be at the established Plutonic mill. Metallurgical studies on Hermes samples have shown it to be amenable to this process.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for surface and underground ore.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Hermes metallurgical test work has shown that the Hermes gold is amenable to recovery via the current Plutonic Mill. Test work included crushing and Bond ball mill work index, Leaching and Adsorption, flocculation and settling, rheology, geochemistry. 95% recovery used for pre-feasibility study. 97.7% recovery averaged from variability test work at 36 hrs and 95.6% was achieved from the composite test work at 36 hrs. The period of 36 hrs matches the operating Plutonic processing facility.
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	There is no bulk sample work.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.

Criteria	JORC Code explanation	Commentary
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Plutonic operates under Department of Environment and Conservation (DEC) Licence L6868/1989/11 in accordance with the Environmental Protection Act WA 1986. Plutonic holds one groundwater licence; GWL 151450(6). The 2012 annual groundwater well licence production report indicates that the aquifers can support the current rate of extraction. Plutonic's mine closure plan has been developed in accordance with the DMP and EPA Guidelines for preparing Mine Closure Plans June, 2011. The 2012 closure plan was submitted to the DMP and was approved on 5th September 2012.The mine closure plan details studies such as waste rock characterisation that are to be completed before closure of the site. Hermes is a satellite mining operation. The Hermes Mining Proposal and Mine Closure Plan is currently being drafted for submission. All required studies have been completed. Application for ground water licence for the Hermes Project has been completed and submitted for assessment.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	All processing infrastructure is in place at Plutonic Gold Mine. The Hermes Project is a satellite pit operation and extension of the Plutonic Gold Mine.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital and operating costs have been supplied by NST, based on supplier and contractor quotes as well as Entech's cost database through the "pre-feasibility study" process.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed in Excel and has been used to complete a life of mine cash flow estimate.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only using a long-term gold price of A$1,500 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	NST report in Australian dollars. Therefore, no exchange rate is used or required
	Derivation of transportation charges.	All transportation charges have been supplied by NST, based on supplier and contractor quotes. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on data supplied by NST. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue has been based on the commodity price and exchange data provided by NST. Single commodity pricing for gold only, using a long-term gold price of A$1,500 per ounce after allowance for 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth Mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	N/A
	Price and volume forecasts and the basis for these forecasts.	N/A
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model for that has been prepared at a "pre-feasibility study" level of accuracy economic modelling. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model.

Criteria	JORC Code explanation	Commentary
		• Economic inputs have been sourced from suppliers or generated from database information relating to the relevant area of discipline. • A discount rate of 0% has been applied. • The NPV of the project is strongly positive at the assumed commodity prices.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,500 ± $200 per ounce. Due to the current short life, the project is not seen as highlight sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	None
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Approvals and permitting for Hermes is currently progressing. Hermes is on a granted mining lease. All required studies such as flora and fauna surveys, stygofauna study, hydrogeological investigations, surface water assessment, pit lake modelling and assessment, geotechnical assessments and modelling, mine-waste characterisation study have been completed. Application to extract water has been submitted to DoW for approval. Tenure of two miscellaneous licences for the purposes of a private haul road are yet to be granted.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves are reported as Probable classification which is made up of only Indicated Resource material. The Ore Reserve shapes have been generated using practical mining constraints.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserves reporting processes has been subjected to an internal review by Entech's senior technical personnel in July 2016.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global scale.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	None that are likely to have any impact on the current reserve.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Pre-mining, not production data to compare to as yet

NORTHERN STAR RESOURCES LIMITED

JORC Code, 2012 Edition – Table 1 Report: Kanowna Belle Underground Resource (30 June 2016) and Velvet Exploration Results July 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	The deposit is sampled in majority by diamond drilling (DD) and reverse circulation (RC) drilling. Sample intervals are defined by the geologist to honour geological boundaries. DD core was orientated, measured and then sampled by cutting the core in half longitudinally using an "Almonte" diamond saw. Cutting was along orientation lines, which are retained in the tray or where orientation lines are absent along cutting lines marked on the pieced core.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sample intervals are marked on the core by a geologist typically every 1m to honour geological boundaries. Sample interval lengths vary from 0.3m and 1.2m (NQ). The same half of the core was selected for each sample interval, placed in numbered calico bags and submitted to the laboratory for analysis. The other half of the core was left in the core tray which was stamped for identification, stored and catalogued. A minor amount of infill or grade control drilling was submitted as whole core. Due to the refractory nature of the mineralisation there is very little free, coarse gold. It is considered that the half core samples submitted for assay are representative of the ore being sampled.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Assaying is by fire assay with a 40 or 50g charge and AAS analysis for gold. All sampling data is entered onto logging sheets or tablet computer and entered into the central Acquire database. Some historic RC holes from surface and the pit were also used for resource estimation. These holes typically have 2m sample intervals.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Kanowna Belle Resource: 679 RC holes and 3222 diamond holes were used for estimation. DD core is mostly NQ with some BQ, HQ and LTK60. Depth of diamond tails are generally 20-30m. Velvet: HQ and NQ2 diameter drill core. Where appropriate diamond core was orientated using a spear, Ballmark™, Ezimark™, or ACE multi electronic tool.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	DD core recovery factors are generally very high with in excess of 95% recovery. RC recovery was also recorded as good to very good. Historic DD core stored onsite shows excellent recovery.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For DD, the contractors adjust the rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geologist. Any issues are communicated back to the drilling contractor. Some loss occurred when drilling through fault zones such as the Fitzroy Fault. Areas of potential lower recovery were generally known beforehand and controlled drilling techniques were employed to maximise recovery.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between recovery and grade.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All DD core was logged by geologists with lithology, mineralisation, structure, alteration, veining and specific gravity were recorded. Quantitative measures such as structural measurements, intensity of alteration, percentage of mineralisation, thickness of veins and veins per metre were also recorded. Geotechnical measurements on DD core include RQD, Recovery, and Fracture Frequency. Prior to Apr-12, joint sets, infill, infill thickness and roughness were also geotechnically measured. Photographs are taken of each core tray when wet. All mineralised intersections are logged and sampled.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is qualitative and all core is photographed. Visual estimates are made for mineralisation percentages for core.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is sampled by sawn half-core on intervals controlled by geological domaining represented by mineralisation, alteration and lithology. A selected number of grade control holes were full cored. Mineralised intersections are sampled with a maximum and minimum length of 1.2m and 0.2m, respecting lithological or alteration contacts. The down hole depth of all sample interval extents are recorded.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Development face samples are chipped directly off the face into a sample bag aiming for sample size of at least 2.5kg. Samples are a maximum of 1.2m in width and honour geological boundaries. Samples are taken horizontally across the mineralisation.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation is considered appropriate.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Most holes have all intervals sampled.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Quarter core sampling is often undertaken as a check.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage (3mm) and pulverising stage (75µm) requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	All samples are prepared and assayed at commercial laboratories. Entire samples are crushed/pulverised to 95% minus 75µ, splitting off 200g and preparing a 50g charge for fire assay with an atomic absorption finish (FA/AA) for Au, LECO for S and inductively coupled plasma (ICP) for As and other multi-elements. Monthly QAQC reports are prepared to check for any bias or trends with conclusions discussed with the laboratory management. Holes that do not pass QAQC are not used for resource estimation.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Sampling and assaying QAQC procedures include: - Periodical resubmission of samples to primary and secondary laboratories (minimum >5%). - Submittal of independent certified reference material - Sieve testing to check grind size - Sample recovery checks. - Unannounced laboratory inspections Standard control samples and blanks purchased from certified commercial suppliers are inserted at a ratio of 1:20. The standard control samples are changed on a 3-month rotation. The results are reviewed on a per batch basis and batches of samples are re-analysed if the result is greater than three standard deviations from the expected result. Any result outside of two standard deviations is flagged for investigation by a geologist and may also be re-assayed. Primary laboratory Bureau Veritas meets ISO 9001:2000.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent Person to be signed off.
	The use of twinned holes.	No Twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All assay data adheres to Kanowna QAQC standards and is further validated by a qualified person before it can be used in the resource estimation process. ll data is stored in the site Acquire database with hard copies of all logging and sample results filed for each hole. Assay files are received in csv format and loaded directly into the database by the supervising geologist who then checks that the results have inserted correctly. Hardcopy and electronic copies of these are also kept. Holes that cannot be accurately validated or do not meet the requirements of Kanowna QAQC are excluded prior to estimation.
	Discuss any adjustment to assay data.	
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	All collar positions were surveyed. All recent DD holes were surveyed down hole by various methods including single shot down hole camera, EMS (Electronic Multi Shot) method or in-rod gyroscopic survey tools. Holes are typically surveyed at 15m and 30m intervals down hole thereafter. Since the 1st of June 2015, the Reflex TN14 tool is used for lining the rig and true north gyroscopic survey at surface recorded.
	Specification of the grid system used.	
	Quality and adequacy of topographic control.	

Criteria	JORC Code explanation	Commentary
		Any poor surveys are re-surveyed and in some cases holes have been gyroscope surveyed by ABIMS for non-magnetic affected survey. Since April 2014, a Reflex Gyro has been used on holes with a depth >500m. If survey data was missing or quality was suspect and not replaced by more recent drilling, affected data was not used in estimation. For the Velvet prospect, a program of gyroscopic surveys was conducted to verify the position of all holes which could be surveyed. Following this program, all surveys were conducted using a Reflex downhole gyroscope back-sighted to the TN14 true north collar survey. A local grid system (KBMINE grid) is used. It is rotated anticlockwise 29.16 degrees to the MGA94 grid. Drill hole collars are located by the underground mine surveyors using a Laser system respective to the local mine grid and to the overall property in UTM or Australian grid coordinates Topographic control is not relevant to the underground mine.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing is nominally 40m x 40m down to a nominal 20m x 20m in the main zones of mineralisation at Kanowna. Secondary mineralised structures in the hanging wall and footwall are typically narrower and less consistent so have a nominal drill spacing of 15m x 15m. The spacing of 20x20m and 15x15m in conjunction with geological continuity and confidence is used to assign classifications of Indicated in the resource estimation model. Samples have been composited to 1m, which is the dominant sample length, prior to estimation. The Velvet drill core results are compiled into significant intersections for assay result reporting.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of drilled data is perpendicular to the strike of the Kanowna orebodies. Grade continuity follows the plane of mineralisation so no bias is expected from this drilling direction.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	Holes with orientations that are considered likely to introduce sampling bias are excluded from the estimation during the validation process. The orientation of mineralisation at the Velvet prospect is not fully understood at this point in time.
Sample security	The measures taken to ensure sample security.	All core is kept within the site perimeter fence on the Mining Lease M27/103. Samples are dispatched and/or collected by an offsite delivery service on a regular basis. Each sample batch is accompanied with a - Job number - Number of Samples - Sample Numbers (including standards and duplicates) - Required analytical methods - A job priority rating A Chain of Custody is demonstrated by both Company and Bureau Veritas in the delivery and receipt of sample materials. Any damage to or loss of samples within each batch (e.g. total loss, spillage or obvious contamination), is reported to the Company in the form of a list of samples affected and detailing the nature of the problem(s)
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The last external audit was conducted in 2009 with the conclusion that industry best practice was being followed. Standards and procedures have remained largely unchanged since this time. A review of sampling techniques, assay results and data usage was conducted internally by the Companies' Principal Resource Geologist during the model peer review process with no material issues found.

NORTHERN STAR RESOURCES LIMITED

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Kanowna Belle mine and associated infrastructure is located on Mining Leases M27/92 and M27/103. Mining lease M27/92 (972.65 ha) was granted on March 14 1988 and M27/103 (944.25 ha) was granted on January 12 1989. Both leases were granted for periods of 21 years after which they can be renewed for a further 21 years. The Mining Leases and most of the surrounding tenement holdings are 100% owned by Northern Star (Kanowna) Pty Limited, a wholly owned subsidiary of Northern Star Resources Limited. The mining tenements are either located on vacant crown land or on pastoral leases. The leases containing the deposit are pre-1994 leases so are not subject to Native Title claims.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Kanowna was discovered in 1989 by Delta Gold, open pit mining commenced between 1993 and 1998 resulting in a 220m deep pit. Underground operation began in 1998. In 2002, Delta Gold Limited and Goldfields Limited merged to form Aurion Gold Limited and Placer Dome Inc. (Placer Dome) subsequently acquired Aurion Gold Limited. In 2006 Barrick Gold Corporation acquired Placer Dome and in 2014 Northern Star acquired the operation from Barrick. Exploration drilling is ongoing from underground to extend the known mineral resources.
Geology	Deposit type, geological setting and style of mineralisation.	Kanowna Belle is located within the Kalgoorlie Terrane, one of a number of elongate, broadly NNW-SSE striking structural-stratigraphic late Archaean greenstone terranes of the Eastern Goldfields of Western Australia. The Kanowna Belle gold mine is located close to the centre of the NNW-SSE trending, greenstone-dominated Boorara Domain, the eastern most subdivision of the Kalgoorlie Terrane. The Kanowna Belle deposit can be categorised as a refractory, Archean lode-gold type deposit. The orebody is comprised of several ore shoots, including the large Lowes Shoot, and several smaller lodes including Troy, Hilder, Hangingwall and Footwall shoots controlled by sets of structures of various orientations oblique to Lowes. Lowes contains some 80% of known gold mineralisation and strikes ENE, dips steeply SSW and plunges steeply SW. Lowes Shoot has a strike length of 500m, width of 5m to 50m and down-plunge extent greater than 1,250m. The overall steep SE plunge is interpreted to reflect the intersection of D1 (ENE) and D2 (NW) structures Kanowna Belle is one of the only known refractory pyritic orebodies in the Yilgarn Craton. Gold in the Kanowna Belle deposit occurs mostly as fine-grained (<10 µm) inclusions in pyrite or as very fine-grained gold located in arsenic-rich growth zones in pyrite. Typical ore assemblages contain 0.5% S to 1.5% S and 40 ppm As. The Kanowna Belle deposit is hosted by sedimentary volcanoclastic and conglomeratic rocks which are separated into hangingwall and footwall sequences by a major, steeply SSE dipping zone of structural disruption. This structure represents the product of at least three distinct stages of deformation, comprising the Fitzroy Mylonite, the Fitzroy Shear Zone and the Fitzroy Fault, which have produced clear structural overprinting relations. Importantly, this structure has localised emplacement of the Kanowna Belle porphyry which hosts at least 70% of known mineralisation. Localisation of high grade mineralisation and most intense alteration around the composite structure emphasises its importance for acting as the major plumbing system for fluids. Formation of the Fitzroy Mylonite and Fitzroy Shear Zone are interpreted to have occurred during regional south-to-north D1 thrusting. A switch in far-field stress axes to the approximately ENE-WSW D2 orientation caused reactivation of the Fitzroy Shear Zone, resulting in sigmoidal folding of pre-existing structures and formation of a shallow lineation associated with sinistral transcurrent shearing. The Kanowna Belle porphyry cross-cuts fabrics associated with the D1 Fitzroy Mylonite and Fitzroy Shear Zone and is in turn overprinted by S2.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically list, the long section and plan reflect the hole positions used for previous estimation stated. All recent Velvet drill intersections yet to be reported to the ASX are presented with this report.

Criteria	JORC Code explanation	Commentary
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	All reported assay results have been length weighted to provide an intersection width. A maximum of 2m of barren material between mineralised samples has been permitted in the calculation of these widths.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top-cut for the purpose of this report. A lower cut-off of 1gpt has been used to identify significant results, although lower results are included where a known ore zone has been intercepted and the entire intercept is low grade.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	True widths have been calculated for intersections of the known ore zones, based on existing knowledge of the nature of these structures. The orientation of the Velvet mineralisation is not fully known at this point in time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Both the downhole width and true width have been clearly specified when used.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Where mineralisation orientations are known, downhole lengths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Nil.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	KB Resource: Further mine planning work is planned for the area of the Mineral Resource model. The down dip extension of the KB Mineral Resource will be drill tested from the 9245 Exploration drive. Velvet: Because of the difficulty in targeting the mineralisation from current development, an exploration decline is in progress to better position testing of the prospect. Drilling from the 9610 exploration drive, off the exploration decline, started in April 2016.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	The Kanowna-Belle resource data is stored in an Acquire database. The Company employs a database administrator to manage the database. Data was logged onto sheets and entered directly into the database by geologists working on the project. User access logs are maintained for all fields in the dataset. Data validation tools and sign off facilities to record data cross-checking have occurred. Original data sheets and files are retained and used to validate the contents of the database against the original logging.
	Data validation procedures used.	Random checks through use of the data and data validation procedure prior to resource estimation.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The CP has been involved with the project in an advisory role with respect to geological modelling.
	If no site visits have been undertaken indicate why this is the case.	Site visits are conducted at least monthly to check and advise on modelling techniques and to introduce more appropriate techniques.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach honouring the continuity of the geology and applying that to the estimation of the mineral resource. The confidence in the geological interpretation is high with the information gained from ore development and underground drilling. Mine to mill reconciliations add strong support to the interpretation. Interpretations of the mineralised zones were developed from diamond drill data and further refined with underground geological mapping. Interpretations and confining wireframes are developed using the geology related to the mineralised lode. This includes lithology, alteration, veining, structure and mineralisation. This data is sourced from geological logging of drill holes and mapping.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, face maps, 3D photogrammetry, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed.
	The use of geology in guiding and controlling Mineral Resource estimation.	Interpretations and confining wireframes are developed using the geology related to the mineralised lode. This includes lithology, alteration, veining, structure and mineralisation. This data is sourced from geological logging of drill holes and mapping.
	The factors affecting continuity both of grade and geology.	Continuity can be affected by changes in lithology, dilation of structures, intersecting structures, vein density and proximity to the main ore body.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The near-surface weathered portion of the zone deposit shows significant gold depletion to at least 35 m above an undulating supergene "blanket" horizon. This mineralised blanket had plan dimensions of 600 m x 250 m and a thickness of 1m to 10 m. The main Lowes shoot has a strike length of 500 m, width of 5 m to 50 m, and a down-plunge extent greater than 1,250 m. Hanging wall shoots have a maximum strike of 240m, width of 2m to 10m and a current down plunge extent of no more than 700m. Footwall shoots have a maximum strike of 240m, width of 2-20m and a current down plunge extent of no more than 500m.
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Grade estimation for gold and sulphur were completed using Datamine Studio 3 software. Geostatistical analysis and variography were completed using Snowden's Supervisor software The estimation was by ordinary kriging into 10mE, 5mN, 10mRL parent cells using 1m composites. For footwall and hangingwall lodes that are more oblique to the mine grid, 5mx5mx5m parent cells are used. Estimations are constrained by hard domain boundaries (wireframes) to prevent the overestimation of cells outside of mineralised envelopes. 1m sample composites are used which is the dominant sample length. Domains were further checked to geostatistically contain single grade populations and whether further refinement was required. Search ellipses and ranges were based on the continuity seen in the variograms. Kriging efficiency, slope of regression and the sum of any negative kriging weights were reviewed to assess the estimation quality and optimise the estimation parameters. For pass 1 estimations, a minimum of 10 samples and a maximum of 30 samples were often used. Octants were often used to ensure that multiple drill holes were used from multiple directions. If octants were not used the maximum number of composites from a single drill hole was set at 5. Estimates are compared against previous estimates and variances recorded and justified. It is assumed that some minor silver will be recovered with the gold. The silver is not estimated as it is not economically significant. Sulphur can be deleterious to the gold extraction process when it exceeds concentrations of 1.6%. Sulphur is therefore estimated using ordinary kriging although it is not constrained by domain wireframes. Over the past 12 months sulphur levels in the processing plant have been 101% of that predicted in the sulphur estimation model.

Criteria	JORC Code explanation	Commentary
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The estimated grades were assessed against sample grades and, where applicable, previous estimates. The estimate was also reconciled to historic production
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	Sulphur can be deleterious to the gold extraction process when it exceeds concentrations of 1.6%. Sulphur is therefore estimated using ordinary kriging although it is not constrained by domain wireframes. Over the past 12 months sulphur levels in the processing plant have been 101% of that predicted in the sulphur estimation model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	10mE 5mN 10mRL parent cells using 1m composites. For footwall and hangingwall lodes that are more oblique to the mine grid 5x5x5 parent cells are used Search ellipsoids for the main lode are 70m*50m*20m and vary down to 50m*20m*12m on the narrower and more variable footwall and hangingwall lodes. Drill hole spacing is 20m on the main lode and 15m on the HW and FW splays.
	Any assumptions behind modelling of selective mining units.	No assumptions made
	Any assumptions about correlation between variables.	No assumptions made
	Description of how the geological interpretation was used to control the resource estimates.	Estimation is constrained within domain wireframes that are developed using the geology related to the mineralised lode. This includes lithology, alteration, veining, structure and mineralisation. This data is sourced from geological logging of drill holes and mapping.
	Discussion of basis for using or not using grade cutting or capping.	As is typical for gold deposits the data distributions are highly skewed and typically have a CV > 1.5 (ratio of standard deviation to the mean). In order to prevent overestimation top cuts were chosen.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Swath plots by northing, easting and RL were produced for each lode to verify that the model grades honoured the tenor of the drill hole grades. Production reconciliation data is used to check the accuracy of estimation. Over the past 12 months' ounces produced have been 124% of that predicted in the grade estimation model.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Various cutoff grades are calculated including a break even cutoff grade (BCOG), incremental cutoff grade (ICOG) and Mill cutoff grade (MCOG). The BCOG is used as the basis for stope design, though any areas which are marginal or require significant development are assessed by a more detailed financial analysis to confirm their profitability. Kanowna Belle operates at a number of horizons in the mine from as shallow as 170m down to over 1,000m of depth. With depth, come additional costs in terms of haulage and ground support. Consequently, a number of cut-off grades take this into account. Cut-off grades are applied on a block by block basis depending on the relative costs.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The mineralisation is amenable to open cut and underground mining methodology subject to gold price. Underground operations at Kanowna Belle are limited by mine depth and seismic activity. Mine sequencing is optimised for geotechnical considerations and the mining of individual blocks is constrained by the sequence and stress regime. Ultimately this impacts the operation by limiting the number of small stopes that can be mined in isolation and there is limited ability to leave single low grade stopes as pillars when surrounded by mining areas.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical test work results show that the mineralisation is amendable to processing through the Kanowna Belle treatment plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.

Criteria	JORC Code explanation	Commentary
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	A "License to Operate" is held by the operation which is issued under the "Environmental Protection Act 1986", administered by the Department of Environmental Regulation (DER). The license stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production bore field water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licenses and lease conditions. The Kanowna operations are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits. Compliance with air quality permits is required due to the roaster operation and because there are two facilities in the Kalgoorlie region emitting SO_2 gas. Kanowna has a management program in place to minimise the impact of SO_2 on regional air quality, and ensure compliance with regulatory limits.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	A simple water immersion method referred to as the MARCEY Technique was used for the measurements, where the samples are dried and weighed in air then weighed in water.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones and underground environment
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	The bulk density of all samples is determined using the water displacement method (SG). A global density factor of 2.75 t/m3 is used for the purposes of resource estimation at Kanowna Belle representing the average density recorded from core sample measurements. No significant differences were found between the various rock types to warrant additional refinement to the resource model.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classifications of Measured, Indicated and Inferred have been assigned based on data integrity, continuity of mineralisation and geology, drill density and the quality of the estimation (kriging efficiency).
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate and supported by successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	In 2009, NI 43-101 report and reserve audit, conducted by Scott Wilson Roscoe Postle Associates Inc. concluded industry best practice adhered to. June 2015 model internally reviewed by company Principal Resource Geologist (Competent Person). No material issues found.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	Swath plots by northing, easting and RL were produced for each lode to verify that the model grades honoured the tenor of the drill hole grades.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the entirety of the Kanowna Belle orebody. Each of the estimated lodes will show local variability even though the global estimate reflects the total average tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Northern Star Resources Limited June 2016 Mineral Resource
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources are reported inclusive of the Ore Reserve
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Competent Person is based at the site.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	A minimum Pre-Feasibility level study is completed prior to converting an ore zone into ore reserve.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Ore reserves are re-optimised on a half yearly basis taking the most up to date model, gold price and cost forecasts into account. The Ore Reserve methodology at Kanowna Belle is to complete a full mine design built from the latest block model using calculated cut-offs as a guide. Stopes are included or excluded from the ore reserves based on the BCOG for the particular mining area. A stope shape is designed around material at the BCOG and evaluated using the design software. Stope shapes of grade close to the BCOG are assessed using a more detailed financial evaluation to determine if they are to be included in reserves. Design of stopes is also carried out below the BCOG to ensure that sensitivity results are meaningful. Mine planners are supplied with guidelines for blocking out stopes. These guidelines take into account the effect of major structures and their impact on stoping designs. In general, the stope designs will not contain material below the breakeven block cut off unless there is reasonable grounds to mine that material. Exceptions to this include sub-economic material which is encapsulated by payable ore, or unavoidable extraction circumstances. The stope shape includes dilution, which is factored in numerically at an assumed grade for each individual stope based on the block model. All design work is carried out with the software Studio5D Planner. existing mine design provides the starting point for the reserves. Planned stope geometry follows geotechnical design guidelines which have been in place for a number of years. The designs are evaluated for gold, sulphur and tonnes by Mineral Resource category bins. In this way, the Measured and Indicated portions of the design can easily be established. The evaluation results are automatically output to the scheduler software EPS. EPS is used as a flagging and calculation tool in the processing of ore reserves. Factors for dilution and recovery are applied in EPS with stoping blocks then classified into Ore Reserve categories based on cut-off. COG margin and reserve code attributes are then attached to the ore reserve wireframe. The wireframes are then coloured by a legend to allow visual representation of reserve code and stope margins. Reviewing all the stopes enables the setting of Ore Reserve codes. Ore Reserves are reported as Measured and Indicated resource material with an Ore Reserve code of 1 to 3 inclusive.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Forward looking forecast costs and physicals form the basis of the cut-off grade calculations. • The assumed AUD gold price is the average of the previous 12 months. • Mill recovery factors are based on test work and historical averages. • Various cut-off grades are calculated including a break even cut-off grade (BCOG), incremental cut-off grade (ICOG) and Mill cut-off grade (MCOG). The BCOG is used as the basis for stope design, though any areas which are marginal or require significant development are assessed by a more detailed financial analysis to confirm their profitability. • Kanowna Belle operates at a number of horizons in the mine from as shallow as 170m down to over 1,000m of depth. With depth, come additional costs in terms of haulage and ground support. Consequently, a number of cut-off grades take this into account. Cut-off grades are applied on a block by block basis depending on the relative costs.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Mineral Resource is converted to Ore Reserve after completing a detailed mine design complete with a detailed financial assessment. The Mineral Resource block model is used.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Kanowna Belle underground mine is accessed via a portal within the open pit. The ore is accessed on a level spacing of 30m with development of footwall and ore drives to enable long hole open stoping. The mine is subdivided vertically in mining blocks of nominally 150 to 250 vertical metres.

Criteria	JORC Code explanation	Commentary
		Ore is mined from the stopes and tipped into an ore pass system before being loaded into 775 haul trucks to bring to surface. Stopes are nominally 30m by 20m by 20m in size. This may be increased or decreased depending on the local ground conditions. Once stopes are empty, they are backfilled with paste reticulated from a surface paste plant. Kanowna Belle applies a pillar less, bottom up approach for each block. Mining fronts are maintained in a triangular shape in order to push stress out, towards the abutments of the production and mined out areas.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	The mine design takes geotechnical constraints into account and is reviewed by geotechnical engineers prior to been finalised Underground operations at Kanowna Belle are limited by mine depth and seismic activity. Kanowna Belle has a relatively high stress rock mass and a history of seismic events. This impacts the operation by limiting the amount of small stopes that can be mined in isolation and there is limited ability to leave single low grade stopes as pillars when surrounded by mining areas. The environment is controlled by adherence to a geotechnically favourable extraction sequence and by the application of appropriate ground support.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to underground mining only
	The mining dilution factors used.	Dilution factors are updated annually and are based on the historical performance of each mining block and evaluation of the geotechnical block model. Average stope dilution is currently 26%.
	The mining recovery factors used.	The recovery factor is reviewed and updated annually based on historical recovery at the site. Average stope recovery is currently 86.7%.
	Any minimum mining widths used.	Standard stope sizes are 15m along strike with a 30m level spacing. Minimum mining width of 4m is assumed.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Designed stopes with greater than 50% inferred blocks are excluded from the reported Ore Reserve.
	The infrastructure requirements of the selected mining methods.	The Kanowna Belle mine infrastructure is developed and in place and includes mine dewatering pumps, compressed air supply, mine ventilation, and a small shop on the 800 level. The main access ramp connects the mine to an adit in the Kanowna Belle open pit. The ramp is well maintained and is watered to reduce dust generation from the haul trucks. There is a radio communication system throughout the mine.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	The Kanowna Belle plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. The milling facilities are designed to process approximately 1.8 million tonnes per annum. The plant has the capability to treat both refractory and free milling ores, through either a flotation circuit and associated concentrate roaster circuit (including carbon-in-leach (CIL) gold recovery) or bypassing the flotation circuit and going directly to a CIL circuit designed to treat flotation tails. The plant campaigns both refractory and free milling ores every month. Ore Reserves are calculated using processing plant recovery factors that are based on test work and historical performance
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 11 years' continuous operation
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Milling experience gained since 2005, 11 years' continuous operation
	Any assumptions or allowances made for deleterious elements.	No assumption made
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained since 2005, 11 years' continuous operation
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design	The Kanowna Belle Mine is operated subject to the requirements of the Western Australian Mining Act 1978 and the Mines (Safety) Act, regulated by the Department of Minerals and Petroleum Resources (DMPR) Mines Inspectorate.

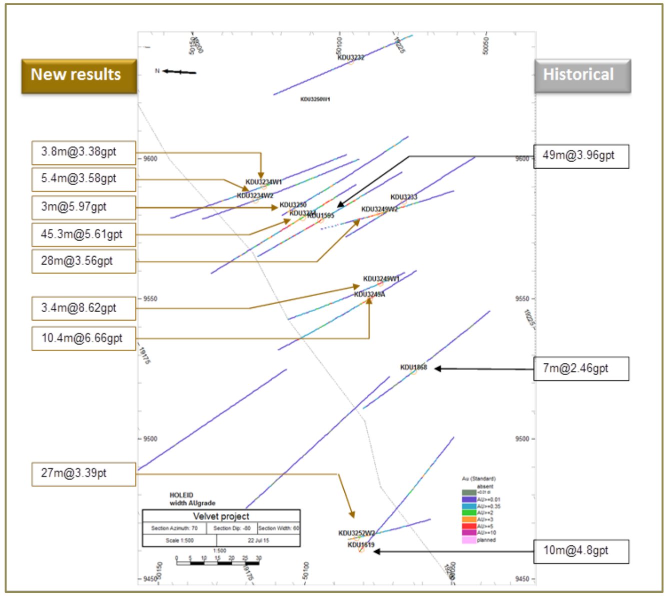
NORTHERN STAR RESOURCES LIMITED

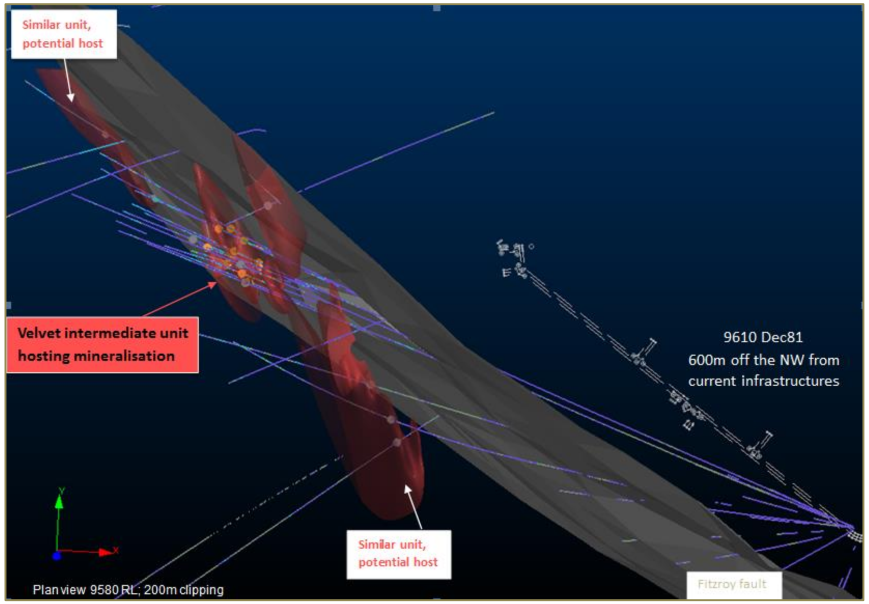
Criteria	JORC Code explanation	Commentary
	options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	The Mining Leases covering the Kanowna Belle operation stipulate environmental conditions for operation, rehabilitation and reporting. A "Licence to Operate" is held by the operation which is issued under the requirements of the "Environmental Protection Act 1986". Kanowna Belle is a prescribed premises requiring Department of Environment (DoE) licences to operate. It covers the following activities: - Crushing plant - CIP process plant - Sulphide concentrate roaster - Tailings dam cells 1 and 2 - Calcine tails dam - Wastewater treatment plant - Arsenic waste stabilisation plant and disposal into underground workings - Open cut and underground mines - Paste backfill plant - Batch plant The key environmental areas covered in the licence are: - Air pollution and control conditions - Water pollution control conditions - Solid waste conditions In late September 2001, DER approval was granted to commence on-site encapsulation and disposal of arsenic trioxide (As_2O_3). In accordance with the licence from the DER, the encapsulated blocks that are disposed of underground are enclosed in backfill generated from the plant tailings
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	Access to the Kanowna Belle operation is provided by well-maintained public and private roads. Employees reside in Kalgoorlie and commute to site daily. Normal communication channels satellite and land-based facilities are available. Potable water for the Kanowna Belle operations is pumped from Kalgoorlie to a storage facility on site. Non-potable water requirements are sourced from bore fields up to 10 km away from the mine site. Makeup water for the Kanowna Belle process plant is supplied by pipeline from a bore field located in the Gidgi palaeochannel approximately 15 km from the plant site with some water is sourced from abandoned pits. Electricity is provided by the state electricity grid. A 15 km long 33 kV line from Kalgoorlie provides all electricity requirements of the operations. Sources of fuel, such as diesel, gasoline, propane, etc., are readily available at competitive pricing from local suppliers, as there are multiple operating plants in the Kalgoorlie area.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital costs are projected through an annual budget process.
	The methodology used to estimate operating costs.	After a design is completed the mining sequence and processing sequence are scheduled. The schedules are costed in detail using a zero based budgeting system.
	Allowances made for the content of deleterious elements.	No allowances made
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	The gold price is based on internal forecasts.
	The source of exchange rates used in the study.	Internal forecasts.
	Derivation of transportation charges.	Historic performance.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Historic performance.
	The allowances made for royalties payable, both Government and private.	State Govt. 2.5% royalty is built into the cost model
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	A$1,500/oz gold price.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.

Criteria	JORC Code explanation	Commentary
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	All product is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not applicable.
	Price and volume forecasts and the basis for these forecasts.	Corporate guidance.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	NPV is used during Pre-Feasibility and Feasibility studies as required. Economic assumptions such as discount rate and estimated inflation are finalised at the time of the study. NPV is not used in the bi-annual reserve optimisation. Cut-off grades, derived from 12 month forward looking unit costs, form the basis of the bi-annual reserve optimisation.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities have been used with gold price ranges of A$1,300 to A$1,700 per ounce.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	No issues.
	The status of material legal agreements and marketing arrangements.	No issues.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	No issues.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	Classifications of Measured, Indicated and Inferred have been assigned based on data integrity, continuity of mineralisation and geology, drill density and the quality of the estimation (kriging efficiency).
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the Competent Persons view of the deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Nil.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	Ore Reserve estimates are reviewed and approved by site management prior to release. In 2009, NI 43-101 report and reserve audit, conducted by Scott Wilson Roscoe Postle Associates Inc. In 2006, AMER Qualified Person's report in support of the declaration of the 2005 EOY Mineral Resources and Mineral Reserves, Ore Reserve Audit, by Kal West
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the model and Ore Reserve Estimate is considered high based on current mine and reconciliation performance.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Estimates are global but will be reasonable accurate on a local scale.

NORTHERN STAR RESOURCES LIMITED

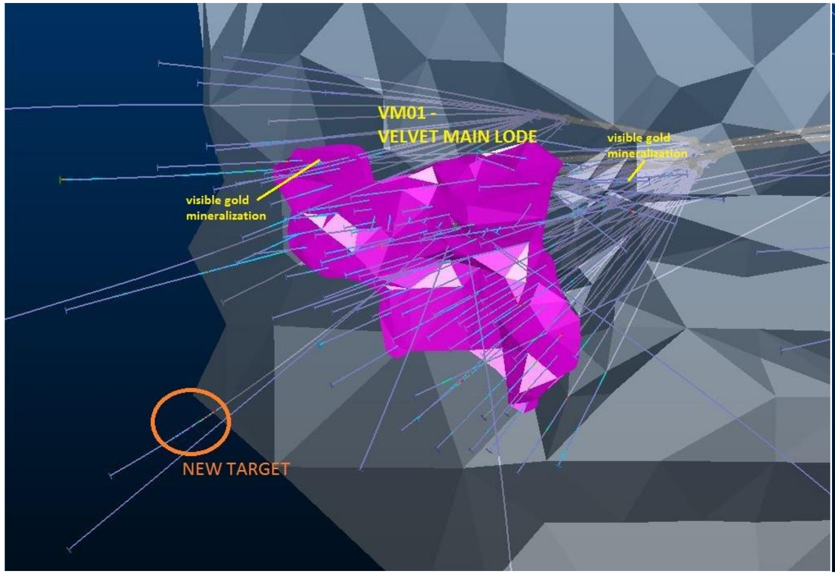
Criteria	JORC Code explanation	Commentary
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Not applicable.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation results from past mining at Kanowna Belle has been considered and factored into the Ore Reserve assumptions where appropriate.

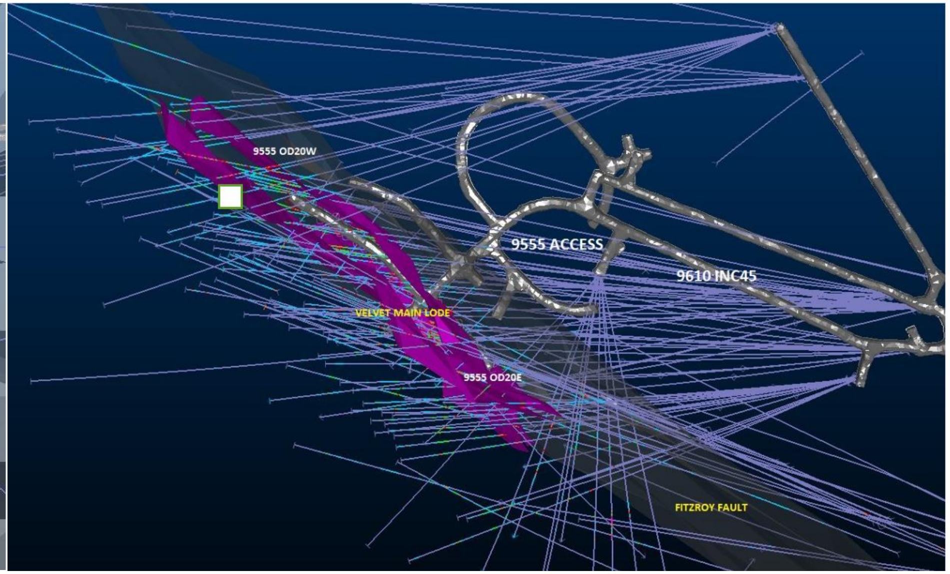


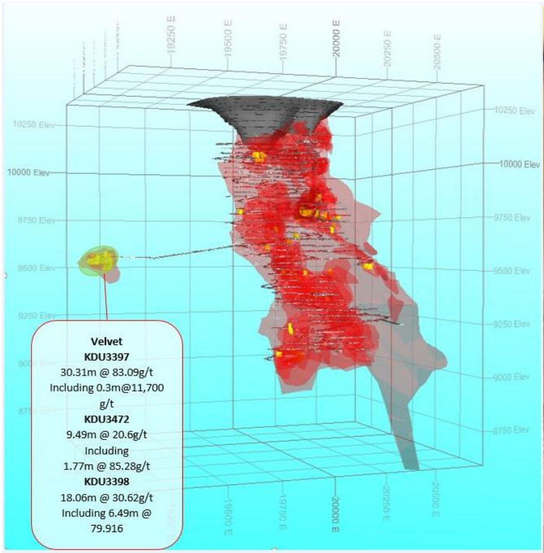


Plan View and 3d Views of the Velvet Drilling

NORTHERN STAR RESOURCES LIMITED







NORTHERN STAR RESOURCES LIMITED

JORC Code, 2012 Edition – Table 1 Report: Six Mile Resource (30 June 2015)
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Samples were obtained using reverse circulation (RC) drilling and HQ diamond drilling (DD).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	For 2014, RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. 4m Composite spear samples were collected for the entirety each hole. The 1m split samples were then taken for any composite sample that returned an assay grade >0.1gpt. The 1m splits were also taken for composite samples either side of the anomalous composite. For 2015, RC drilling the 1m cone-split sample was submitted for assay for all intervals. For DD drilling, half core samples were submitted for assay. Holes were sampled at a nominal 1m sample interval, although this was varied to match geological criteria. The minimum sample size used is 0.3m.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g pulp splits were then dispatched to Genalysis Perth for fire assay 50gm charge and AAS finish analysis. Anticipated high grade zones were analysed by 1kg Leachwell or triplicate fire assay analysis.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is completed using a 5.75" drill bit, downsized to 5.25" at depth. Historically, RAB, Aircore, RC and DD holes have been drilled in the area. Historic DD in the area has been conducted in NQ2 diameter (50.5mm). Recent DD core was drilled in HQ diameter and oriented using the Reflex ACT Core orientation system.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Core is measured and any determined loss recorded in the database. RC samples are routinely weighed to assess recovery
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during 2014-2015 RC drilling. For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No bias has been noted
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	RC chips were sieved, washed and logged. RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all logged separately for each metre. Where possible, quantitative measures are used such as percentage values for individual minerals or vein types. All DD holes were logged to end of hole for regolith, lithology, alteration, veining and mineralisation. Where possible, quantitative measures are used such as percentage values for individual minerals or vein types. Quantitative structural measurements were also taken.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
	If core, whether cut or sawn and whether quarter, half or all core taken.	For DD highly oxidized saprolite, full core samples were submitted for assay as the sample deteriorates significantly upon cutting. Once competent core is reached, sampling switches to half core sampling.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. These samples were submitted to the lab from any zones approaching known mineralisation and from any areas identified as having anomalous gold. Outside of mineralised zones, spear samples were taken over a 4m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation is considered appropriate
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken for RC samples at a rate of 1 in 20. For the composite samples the spearing process was repeated from the opposite side of the green bag. For 1m split samples, the full rig sample was passed through a riffle splitter to provide a duplicate. For 2015 RC drilling, the duplicate was taken from the cone splitter. No duplicate sampling of core (sending the remaining half core sample) has been conducted as the geological value of the core is considered higher than the need to duplicate sample.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Sample preparation was conducted at Genalysis Kalgoorlie, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Core samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg, a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. For fire assay, 300g pulp subsample is taken with an aluminium scoop and stored in labelled pulp packets. For Leachwell, 1kg of pulped sample is taken.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested by HCl and HNO3 acids before Atomic absorption spectroscopy. Repeatability of sub-samples was outside acceptable limits with 2014 DD drilling indicated the presence of coarse gold within cm scale stockwork veining as the likely cause for the poor repeatability. In order to improve assay repeatability test work analysing 1kg samples using the Leachwell technique with AAS finish, was completed on coarse bulk reject sample from 2014 RC and DD drilling. Leachwell is not to "total" technique, but is considered to approximate the cyanide extractable gold that would be recovered in routine metallurgical processes. The initial conditions involved a 12-hour bottle roll. A fire assay on the leachwell tails was completed to assess how effective the method had been in extracting the gold. The initial test work indicates a slightly longer bottle roll is required to leach the coarse gold. Additional test work utilizing a 24hr bottle roll is planned. Leachwell was not available for 2015 Diamond Drilling so a triplicate fire assay was sued for zones with anticipated coarse gold. The average was then taken as the final sample grade.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. This is random, except where high grade mineralisation is expected. Here, a Blank is inserted after the high grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field Duplicates are taken for all RC samples (1 in 20 sample). No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off
	The use of twinned holes.	No twinned holes were drilled for this data set
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is entered directly into an Acquire database. Logs are exported to csv files. A hardcopy and electronic copy of this csv file is then stored. Assay files are received in csv format and loaded directly into the database by the Project Geologist. A geologist then checks that the results have inserted into the database correctly. Hardcopy and electronic copies of these are also kept. No adjustments are made to this assay data.
	Discuss any adjustment to assay data.	

Criteria	JORC Code explanation	Commentary
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control.	Planned holes are pegged using a Differential GPS (DGPS) by field assistants. During drilling, single-shot magnetic surveys are taken every 30m to ensure the hole remains close to design. This is performed by the driller using the Globaltech Pathfinder DS1 survey system and checked by the supervising geologist. A final survey is taken once the end of hole is reached. The final collar is picked up after hole completion by Differential GPS in the MGA 94 Zone 51 grid. For 2014 DD drilling, each hole was gyroscopic surveyed to verify the single shot surveys. Topographic control is through an airborne survey conducted in 2009 by Survey Graphics mapping consultants using airborne DGPS (Differential Global Positioning System). Alternative frames were orthorectified using a 30m DEM within the mapping area and a 50m DEM outside the mapping area, captured using photogrammetry. This topographic control has been verified by the DGPS pickup of numerous hole collars
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area greatly varies. Up to 100m below surface, spacing is typically 40m x 40m which is reduced at depth where few drill holes intersect ore. No compositing has been applied to these exploration results, although composite intersections are reported.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate.
	Whether sample compositing has been applied.	No exploration results reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	There are various mineralised orientations at Six Mile, including porphyry contacts and stockwork lodes, with two main shear orientations; NW-trending shears dipping steeply (70-80°) to the SW and ENE trending shears dipping steeply (70-80°) to the South. Many of the drill holes in the Six Mile area have been drilled at poor orientations to these structures due to poor understanding of the geology prior to the recent interpretation. Wherever this has occurred, it is clearly noted in the report. These holes are only suitable as an exploration tool for further targeting and are unlikely to be used in any future resource.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources' in a secure yard. Once submitted to the laboratories, they are stored in a secure fenced compound and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	An internal review of RC sampling has been conducted to determine if the low repeatability is due to coarse gold, poor sampling or both. A number of steps have been taken to improve the primary sampling including the fitting of an additional arm and spirit level to the cone splitter to ensure it is kept straight and training drill offsiders in sample theory to help ensure a more consistent sample.

Section 2 Reporting of Exploration Results
(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes mentioned in this report are located within on Mining Lease M27/63, held by The Kanowna Mines Ltd, a wholly owned subsidiary of Northern Star Resources.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Western Mining Corporation (WMC) commenced exploration in the Six Mile AREA in 1983. Early exploration consisted of costeans, followed by RC drilling. A resource of 119,482 tonnes @ 3.2gpt was calculated and mining began in 1986. Mining ceased in 1988 due to reconciliation issues. In the mid 1990's, 3 DD holes were drilled by WMC to test for mineralisation below the main pit, although assay results were poor. The current location of the core is unknown. Delta Gold acquired the tenement in 2000 and drilled 20 RC holes and 1 DD hole below the existing pit. This allowed a

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
		resource to be calculated of 2.6 million tonnes @ 2.1gpt. Placer Dome subsequently acquired the tenement through their takeover of AurionGold in 2002 and conducted no exploration until the Barrick takeover in 2004. Barrick Gold conducted channel sampling of the pit walls in 2007 followed by 2 DD holes in 2008 with limited success.
Geology	Deposit type, geological setting and style of mineralisation.	The Six Mile deposit is situated within the Boorara domain of the Kalgoorlie Terrane, part of the Norseman-Wiluna Greenstone Belt. The Scotia-Kanowna dome, a D2 granodiorite pluton, intrudes a Boorara domain sequence of lower basalt, komatiites, upper basalt and felsic volcanics The Six Mile area is dominated by massive chlorite-amphibole basalt with at least two phases of quartz feldspar porphyry intrusion. Two main shear orientations exist within the pit. NW-trending and ENE-trending. Mineralisation occurs within quartz-carbonate veins hosted by these discrete shears Stockwork mineralisation is hosted within the basalt in proximity to shallow to moderately dipping lodes. Mineralisation also exists on the Footwall and Hangingwall of porphyry contacts. The Main Fletcher Porphyry hosts consistent low grade mineralisation, and a supergene lode exists in the Main Pit zone.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically list the complete dataset, the long section and plan reflect the hole positions used for previous estimation stated. No exploration results reported.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results reported
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration results reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results reported.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	No exploration results reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration results reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No further relevant work has been carried out at the Six Mile project.

Criteria	JORC Code explanation	Commentary
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Following the reinterpretation of the Six Mile project, and the creation of a new geological model, a resource modelling exercise was undertaken. It is envisaged that further drilling will be undertaken to increase the confidence in the area and convert the Inferred Resource to Indicated, as well as increasing the size of the reportable resource.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	

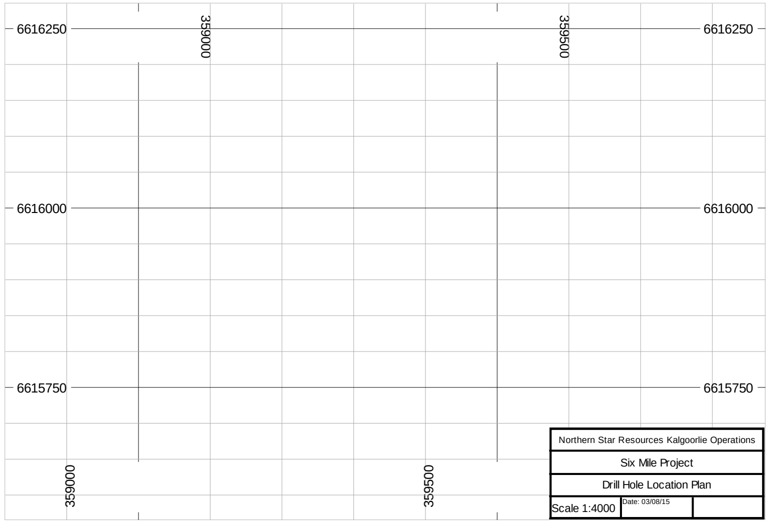
Section 3 Estimation and Reporting of Mineral Resources
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

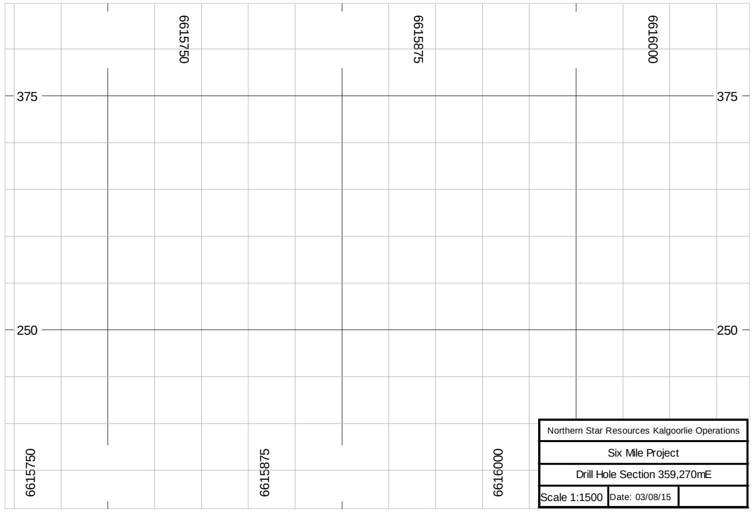
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	All data is stored in a digital database with logging of changes and management of data integrity. Validation is enforced when the data is captured. Data is exported to ASCII files before importation into resource modelling software, no manual editing is undertaken on any data during the export/import process
	Data validation procedures used.	Random checks through use of the data and data validation procedure prior to resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Multiple site visits undertaken by geologists supervising the drilling programs and preparing the geological interpretation.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is reasonable confidence in the geological interpretation. The geological interpretation is based on a combination of geological logging and mapping within the existing pit. Geological logging includes both contemporary and historic data. The main geological features are exposed in the existing pit and are believed to be well understood. Geological features not exposed are solely supported by drill data.
	Nature of the data used and of any assumptions made.	Nil
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative estimates have been conducted
	The use of geology in guiding and controlling Mineral Resource estimation.	Wireframes of the interpreted geology have been used to constrain mineralisation
	The factors affecting continuity both of grade and geology.	Grade continuity is affected by a high component of coarse gold distributed throughout the mineralisation. Geological structures are complex interplay of structure and intrusive bodies.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Mineralisation has been identified over a strike length of approximately 600m and over a depth of approximately 350m. Mineralised horizons vary in thickness between 2.6m and 15m, with an average thickness of around 3.0m
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Drill holes were composited into 1m intervals down hole within each interpreted domain. The composite lengths were allowed to vary between half and one and a half times the nominal composite length to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the uncomposited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. Simple Ordinary Kriging was used to estimate all mineralised domains. The local mean values used during Simple Kriging was estimated from the declustered mean of the top-cut composited sample data.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The estimated grades were assessed against sample grades and, where applicable, previous estimates.
	The assumptions made regarding recovery of by-products.	No assumptions are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Grades were estimated into 20m(E-W) x 5m(N-S) x 20m (RL) panels for the majority of domains. Two supergene domains were estimated using 20m(E-W) x 20m(N-S) x 5m(RL) panels. The majority of domains were estimated in 2D, where a significant proportion of the domain was thicker than 5m, grades were estimated in 3D. Search distances used for estimation based on variogram ranges and vary by domain.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	"Mineralisation" wireframes are created within the geological shapes based on drill core logs.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Kriging neighbourhood was refined using statistical measures of Kriging quality. The estimated grades were assessed against sample grades and against declustered mean values.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Cut-off grades for reporting the resource were developed using a gold price of A$1,700 and budgeted Kanowna Belle mining costs for 2015-16.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	An open pit optimisation study was run to select the portion of the model to be included in the resource tabulation. Dilution and recovery factors were included in the optimisation study. Mining costs were developed with reference to typical unit costs currently available. The reported resource is contained within the optimum shell for an A$1,700/oz gold price.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical recovery factors have been developed based on extensive experience processing similar material from the Kanowna area.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The utilisation of existing Kanowna Belle infrastructure will minimise the impact of development of the project. It has been assumed that the permits required for the operation will be readily obtainable.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density measurements from project drilling and from production within the area were used to assign values within interpreted weathering horizons.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities are applied to domains for the ore zone and by oxidation state.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: • Geologic grade continuity • Density of available drilling • Statistical evaluation of the quality of the kriging estimate

Criteria	JORC Code explanation	Commentary
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Appropriate account has been take of relevant factors.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is considered representative
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource model has been reviewed internally by Northern Star Principal Resource Geologist.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Six Mile style of mineralisation. The estimate is considered to be robustly estimated on a global scale for material classified as Inferred.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Global estimate, with local variation to be expected.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production data to compare.





Plan view and representative section of the Six Mile deposit

JORC Code, 2012 Edition – Table 1 Report: Kundana Underground Resource (30 June 2016), Raleigh Drill Results at July 2016

(Rubicon, Hornet, Pegasus, Drake, Pope John, Moonbeam, Millennium, Arctic, Raleigh and Skinners Vein)

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a combination of Reverse Circulation (RC) and Diamond Drilling (DD). RC drilling was used to drill pre-collars for many of the holes with diamond tails. Diamond drilling constitutes the rest of the drilling. Face sampling is included from active mining areas.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from both NQ2 and HQ diamond core with a minimum sample width of either 20cm (HQ) or 30cm (NQ2). RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. 4m composite spear samples were collected for each hole with 1m samples submitted for areas of known mineralisation or anomalism.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for 50g fire assay charge and AAS analysis.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Both RC and Diamond Drilling techniques were used at the K2 deposits. DD holes completed pre-2011 were predominantly NQ2 (50.5mm). All resource definition holes completed post-2011 were drilled using HQ (63.5mm) diameter core. Core was orientated using the Reflex ACT Core orientation system. RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth. RC Pre-collar depth was restricted to 180m or less if approaching known mineralisation.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during RC drilling. Recovery is often poor at the very beginning of each hole, as is normal for this type of drilling in overburden.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling, the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery is excellent for diamond core and no relationship between grade and recovery was observed. For RC drilling, pre-collars were ended before known zones of mineralisation and recovery was very good through any anomalous zones.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged for regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	RC chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Resource definition DD drill core is cut and half the core is taken for sampling. The remaining half is stored for later use. Whole core sampling may be used for production and grade control drilling.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. These samples were submitted to the lab from any zones approaching known mineralisation and from any areas identified as having anomalous gold. Outside of mineralised zones spear samples were taken over a 4m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation is considered appropriate.

Criteria	JORC Code explanation	Commentary
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken for RC samples at a rate of 1 in 20.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Exploration sample preparation was conducted at Genalysis Kalgoorlie. Production sampling was analysed by Bureau Veritas' Kalgoorlie laboratory. Both facilities undertake a similar process commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g fire assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to test the analysis process. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples. This is random, except where high grade mineralisation is expected. Here, a Blank is inserted after the high grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field duplicates are taken for all RC samples (1 in 20 sample). No field duplicates are submitted for diamond core. Regular audits of laboratory facilities are undertaken by Northern Star personnel.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent Person to be signed off.
	The use of twinned holes.	No twinned holes were drilled for this data set
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging was captured using excel templates. Both a hardcopy and electronic copy of these are stored, as well as being loaded in to the database using automatic acquire loaders. Assay files are received in csv format and loaded directly into the database by the Database administrator (DBA). A geologist then checks that the results have inserted correctly. Hardcopy and electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	A planned hole is pegged using a Differential GPS by the field assistants Underground diamond holes are located by mine survey staff During drilling single-shot surveys are every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system. Upon hole completion, a Gyroscopic survey is conducted by ABIMS, taking readings every 5m for improved accuracy. This is done in true north.
	Specification of the grid system used.	The final collar position for surface holes is measured after hole completion by Differential GPS in the MGA 94_51 grid.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area varies. For the Resource definition drilling, spacing was typically 40m x 40m, to allow the resource to be upgraded to indicated. For the Pode drilling spacing was approximately 20m x 20m. The HRPD drilling was much more wide spaced, as this is largely unclassified. Spacing is wider than 160m in some areas.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of the structures in the Kundana camp dip steeply (80°) to WSW. The Pode structure has a much shallower dip in a similar direction, approximately 60°. To target these orientations, the drill hole dips of 60-70° towards ~060° achieve high angle intersections on all structures.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, and tracked through their chain of custody and via audit trails.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Hornet, Rubicon and Pegasus Projects are held by the East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). The Hornet, Rubicon Pegasus and Drake deposits are hosted on Mining Lease M16/309. This tenement is subject to two royalty agreements, however neither of these is applicable to the Pegasus deposit. The Moonbeam deposit is hosted within Mining Lease M16/157 which is owned 100% by Northern Star Resources. The Pope John deposit occurs at the junction of 3 tenements, Mining Leases M16/157, M16/97 and M16/87 owned 100% by Northern Star Resources. The Millennium and Centenary deposits are located within Mining Lease M16/87. The Arctic deposit is hosted within Mining Lease M16/72. The Raleigh and Skinners deposits are located on Mining Lease M15/993. A small portion of the Raleigh orebody (Raleigh North) crosses on to Mining Lease M16/157
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The first reference to the mineralisation encountered at the Pegasus project was a Mines Department report produced by Dr. I. Martin (1987). He reviewed work completed in 1983 – 1984 by a company called Southern Resources who identified two geochemical anomalies, creatively named Kundana #1 and Kundana #2. The Kundana #2 prospect was subdivided into a further two prospects, dubbed K2 and K2A. Between 1987 and 1997, limited work was completed. Between 1997 and 2006 Tern Resources (subsequently Rand Mining and Tribune Resources) and Gilt-Edged mining focused on shallow open pit potential which was not considered viable. In 2011, Pegasus was highlighted by an operational review team and follow-up drilling was planned through 2012. This report is concerned solely with 2014 drilling that led on from this period. Raleigh was discovered by Goldfields Limited in the early 2000's
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt in an area dominated by the Zuleika Shear Zone, which separates the Coolgardie Domain from the Ora Banda Domain. K2-style mineralisation (Pegasus, Rubicon, Hornet) consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit (Centenary shale) and intermediate volcanoclastics (Spargoville Formation).

Criteria	JORC Code explanation	Commentary
		Minor mineralisation, termed K2B, also occurs further west on the contact between the Victorious Basalt and Bent Tree Basalt (both part of the regional upper Basalt Sequence). A 60° W dipping fault offsets this contact and exists as a zone of vein-filled brecciated material hosting the Pode-style mineralisation. Raleigh is a laminated vein hosted on the Strzelecki structure which is a discrete fault zone within the broader Zuleika Shear. Skinners Vein is a flat splay in the hanging wall of the Raleigh Main Vein.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically list the complete dataset for the resources, the long section and plan reflect the hole positions used for previous estimation stated. All recent drill intersections for Raleigh Main Vein and Skinners Vein, yet to be reported to the ASX, are presented with this report.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Assay results are length weighted to make continuous intersections with up to 2m of internal waste may be included.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top-cut for the purpose of this report. A lower cut-off of 1gpt has been used to identify significant results, although lower results are included where a known ore zone has been intercepted and the entire intercept is low grade.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these exploration results
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	True widths have been calculated for intersections of the known ore zones based on existing knowledge of the nature of these structures.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Both the downhole width and true width have been clearly specified when used.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Downhole widths are reported.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Metallurgical test work was conducted on 9 Pegasus samples. The results are summarized as follows: - All Pegasus recoveries were above 91% for the leach tests - Gravity gold recovery estimated at 55% - Cyanide consumption 0.62kgpt; Lime 2.29kgpt - Oxygen Consumption 60gpt per hour - Bond Ball mill work index average 18.1 kWh/t - Bond Abrasion Index average 0.1522
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further work will continue in 2015 to extend the Indicated Resource deeper by additional drilling and identify new mineralised shoots on the K2 structure.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	At Skinners, definition and extensional drilling are ongoing.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is either recorded on paper and manually entered into to the Acquire database or directly transferred from a logging laptop over to the database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from laboratory and survey derived files.
	Data validation procedures used.	Random checks through use of the data and data validation procedure prior to resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	This resource estimate has been conducted by geologists working in the mine and in direct, daily contact with the ore body data used in this resource estimate.
	If no site visits have been undertaken indicate why this is the case.	Multiple site visits undertaken by geologists supervising the drilling programs and preparing the geological interpretation.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is high with the information gained from ore development and underground drilling.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drill holes, 3D photogrammetry, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the main K2 structure is based on the presence of quartz veining and continuity between sections on the K2 structure. Drill core logging and face development mapping is used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity is affected by the orientation of the K2 structure and several dextral offset fault structures
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The dimensions for each deposit reported vary, however typically the following dimensions: • Strike length = Up to 1,000m for each K2 and Strzelecki shoot and associated structures • Width = ~0.5-2m average, with widths up greater than 5m • Depth = from surface to ~700m maximum below surface
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Estimation and modelling techniques varies depending on the deposit: **Rubicon, Hornet & Raleigh Resources:** Ordinary Kriging (OK) was used to estimate this resource, using Datamine Studio 3. Two separate domains were used to constrain the main K2 with dilution skins of 0.5m used to constrain the immediate footwall and hangingwall outside the main ore zone. Hangingwall lodes were constrained according to geological features. Each domain is validated against the lithology, and then snapped to the drill-hole and face data to constrain the mineralised envelope as a footwall and hangingwall surface. Compositing of drill-hole samples was completed downhole against any domain flagged in the sample file to belong to the corresponding wireframe for the main K2. Domains within the hangingwall lodes were flagged via use of the 3D wireframes. Post estimation, resource estimations do not have tonnage or grade factors applied. Only gold was estimated and no deleterious elements are noted or estimated.
		Pegasus, Pope John, Moonbeam & Arctic Resources: Ordinary Kriging was used in areas with good drill coverage, Simple Kriging was used to estimate areas with poor drill coverage.

Criteria	JORC Code explanation	Commentary
		Drill holes were composited into 1m intervals down hole within each interpreted domain. The composite lengths were allowed to vary between 0.5m and 1.5m to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the uncomposited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. The local mean value used during Simple Kriging was assigned using the declustered mean of the top-cut composited sample data. Search distances used for estimation based on variogram ranges and vary by domain. Drill spacing is generally around 20m x 20m for the indicated resource and around 40m x 40m for the inferred resource. Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain. The Kriging neighbourhood was refined using statistical measures of Kriging quality. The estimated grades were assessed against sample grades and against declustered mean values Post estimation, resource estimations do not have tonnage or grade factors applied.
		Millennium Resource: Simple Kriging was used for all estimation of all subdomains. Subdomains were created within the main K2 ore zone based on grade/grade accumulation and geological interpretation to identify area of high grade or increased thickness. A 5m dilution zone was estimated either side of the main K2. Drill holes were composited to one single interval for the main K2. Drill holes were composited into 1m intervals down hole where the average thickness of the domain was greater than 5m and within the footwall and hangingwall dilution zones. The average grade and total length of the composite data was compared against the average grade and total length of the uncomposited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. The local mean value used for Simple Kriging was calculated from the declustered mean of the top-cut composited sample data. Search distances used for estimation based on variogram ranges and vary by domain. Drill spacing is generally around 40m x 40m or more. Areas within Millennium and below the historical Centenary Underground workings with good drill support were classified as indicated all remaining areas in the model were classified as an inferred resource. Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain. The Kriging neighbourhood was refined using statistical measures of Kriging quality. Estimation for the domains with an average thickness of less than 5m was based on grade accumulation, with final grade back-calculated from estimated metal and width. 3D estimation was used for domains with an average thickness greater than 5m. No assumptions are made and only gold is defined for estimation No deleterious elements estimated in the model "Mineralisation" wireframes are created within the geological shapes based on drill core logging. Low grades can form part of an ore wireframe.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The estimated grades were assessed against sample grades and, where applicable, previous estimates.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Rubicon, Hornet, Raleigh: Block size is 5m x 5m sub-blocked to 2.5m x 2.5m to suit the narrow north-south orientation of the majority of the domains Average sample spacing is 3.5m (Rubicon-Hornet) and 3.1m (Raleigh) in the case of face samples.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
		Search ellipsoids are 50m*80m*30m to 75m*80m* 70m (Rubicon-Hornet) & 50m*120m*30m to 75m*120m*75m (Raleigh) varying for each zone and the minimum number of samples required on successive passes. Pegasus: Grades were estimated into 10m(N-S) x 10m(RL) panels. Millennium: Block sizes range from 20m x 20m to 50m x 50m sub-blocking to 2.5m x 2.5m is used to match the narrow north-south orientation of the majority of the domains Average sample spacing ranges between 40m x 40m for Centenary to >50m x50 m for Millennium. Search ellipsoids range between minimum 60m*60m*5m (hangingwall dilution domain) to 200m*200m*5m (Centenary) varying for each zone and the minimum number of samples required on successive passes.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	"Mineralisation" wireframes are created within the geological shapes based on drill core logs, face samples, 3D digitized mapping and grade. Low grades can form part of an ore wireframe. A dilution 'skin' is translated 0.5m on both the footwall and hangingwall of the main ore wireframe and is estimated separately to the main ore and surrounding waste but not reported.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts were selected based on a statistical analysis of the data with a general aim of not impacting the mean by more than 5% and vary by domain (ranging from 1 to 400gpt for individual domains and deposits)
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation is through swath plots comparing composites to block model grades, along 20m eastings and RL. Visually, block grades are assessed against drill hole and face data.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	A cut-off grade (COG) of 3.28gpt was developed based on an assumed A$1,700/oz gold price. The COG was calculated by site based engineers using the cost inputs at the producing Kundana operations. A minimum mining width of 2.0m was assumed.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Historical mining and reconciliation data does not affect wire frame interpretation.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical test work results show that the mineralisation is amendable to processing through the Kanowna Belle treatment plant. Ore processing throughput and recovery parameters were estimated based on historic performance and potential improvements available using current technologies and practices.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	A "License to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production bore field water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are also regulated by DoE and are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licenses and lease conditions. An Environmental Management System is in place to ensure that Northern Star employees and contractors exceed environmental compliance requirements.

Criteria	JORC Code explanation	Commentary
		The Kalgoorlie operations (including Kundana) are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density is assumed and comparable to neighbouring deposits at Kundana. Bulk densities from neighbouring deposits were determined from surface DD holes with intervals taken from mineralised and non-mineralised zones within the project area. The bulk densities are derived from wet and dry weighting of core no greater than 30cm total length, with core samples selected by changes in lithology/alteration or every 30-40m where no change is evident.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones and underground environment.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities are applied to domains for the ore zone, footwall and hangingwall as constrained by the lode wireframes.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: • Geologic grade continuity • Density of available drilling • Statistical evaluation of the quality of the kriging estimate
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	All factors taken into account.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This particular resource has not been audited externally. The 2014 YE Pegasus estimate was audited externally by CSA Global with no significant issues identified. The methodology has not since changed.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Kundana style of mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the entirety of the ore zone and surrounding dilution skins. Each of these will show local variability even though the global estimate reflects the total average tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No reconciliation factors are applied to the resource post-modelling.

Section 4 Estimation and Reporting of Ore Reserves

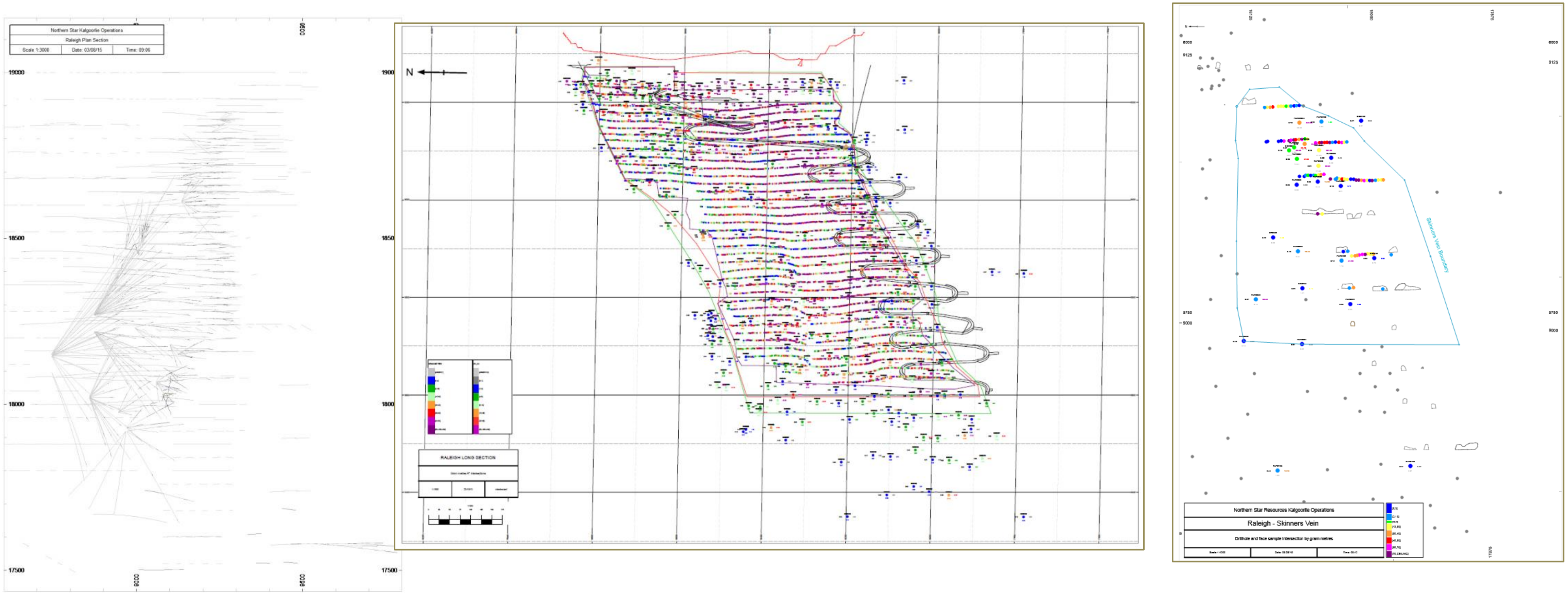
(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Northern Star 2016MY resource
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	The Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken by the Competent Person. The Competent Person is currently engaged to work on site.
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Feasibility Study.

Criteria	JORC Code explanation	Commentary
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	Upgrade of previous Ore Reserve.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Break even cut off of 3.70gpt applied based on forecast costs.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Indicated Resources were converted to Probable Ore Reserves subject to mine design physicals and an economic evaluation.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Selected mining method deemed appropriate as it has been used at Raleigh since 2005 and Rubicon-Hornet since 2011.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	Stope strike lengths generally 15m for dilution control purposes.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	This Table 1 applies to underground mining only.
	The mining dilution factors used.	Based on historical mine performance, mining dilution of 5% rock and 6% paste dilution (11% total) for stoping additional to minimum mining width is applied as well as 10% dilution for ore development.
	The mining recovery factors used.	Mining recovery factor of 95% is applied based on historical data.
	Any minimum mining widths used.	At Rubicon, Hornet, Pegasus and Skinners Vein (Raleigh)- Minimum stope width of 3.0m where the vein is less than 2m wide. 1m additional to vein width when greater than 2m wide. At Raleigh Main Vein - Minimum stope width of 2.7m where the vein is less than 2m wide. 1m additional to vein width when greater than 2m wide.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Designed stopes with greater than 50% inferred blocks are excluded from the reported Ore Reserve.
	The infrastructure requirements of the selected mining methods.	Infrastructure in place, currently is an operating mine. Pegasus will make use of existing infrastructure.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	All Kundana ore is treated at the Kanowna Belle milling facilities. The plant is made up of crushing, grinding, gravity gold recovery, flotation, roasting, CIL, elution and gold recovery circuits. These facilities are designed to handle approximately 1.8 million tonnes of feed per annum. The plant has the capability to treat both refractory and free milling ores, through either using the flotation circuit and associated concentrate roaster circuit (including carbon-in-leach (CIL) gold recovery), or bypassing the flotation circuit and going directly to a CIL circuit designed to treat flotation tails. The plant campaigns both refractory and free milling ores every month.
	Whether the metallurgical process is well-tested technology or novel in nature.	Milling experience gained since 2005, 9 years' continuous operation.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Milling experience gained since 2005, 9 years' continuous operation.
	Any assumptions or allowances made for deleterious elements.	No assumption made.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Milling experience gained since 2005, 9 years' continuous operation.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Rubicon, Hornet, Pegasus and Raleigh are currently compliant with all legal and regulatory requirements. All government permits and licenses and statutory approvals are either granted or in the process of being granted.

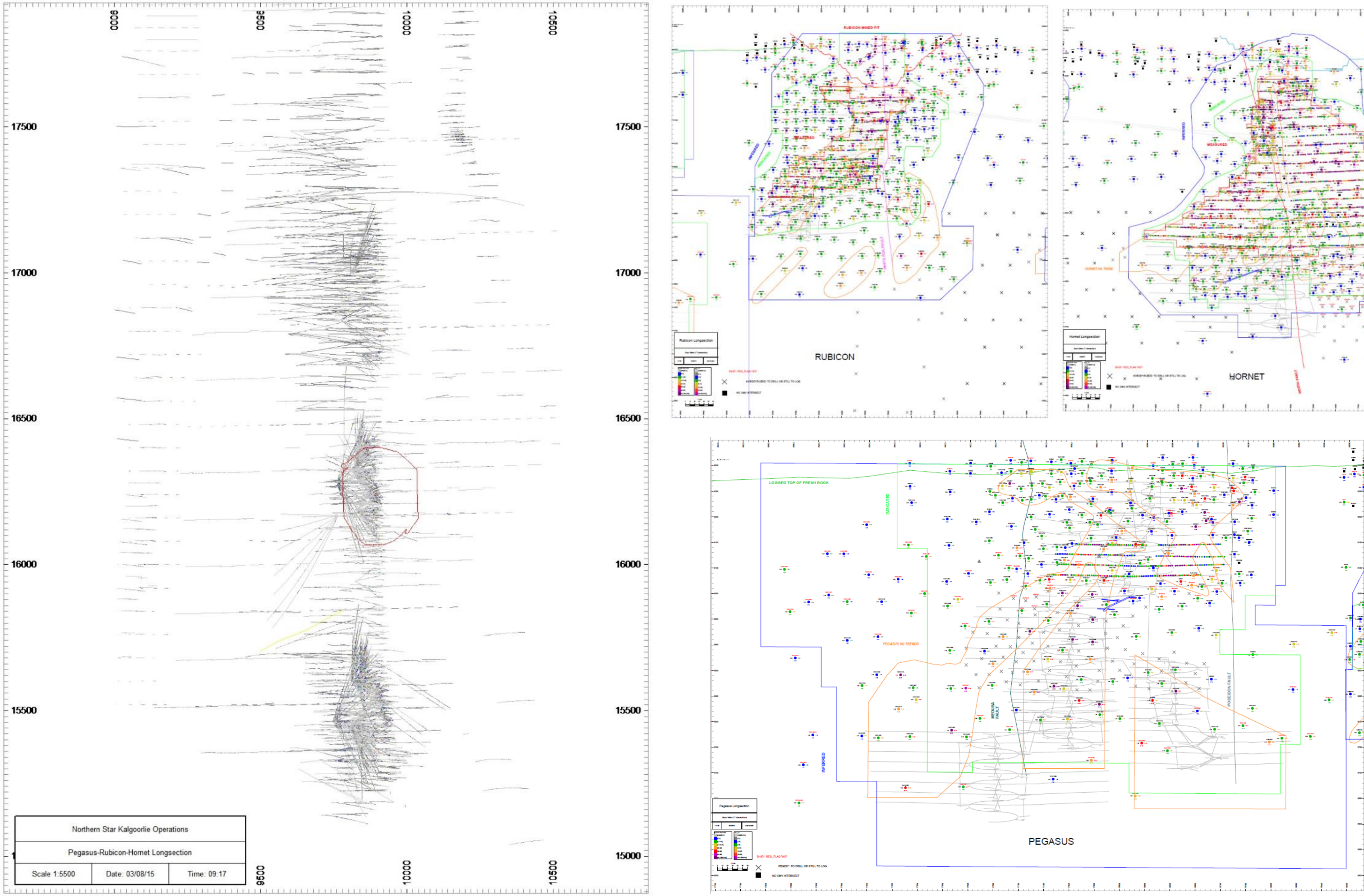
Criteria	JORC Code explanation	Commentary
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	All current site infrastructure is suitable to the proposed mining plan.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Mine development capital cost based on historical performance on site and life-of-mine forward planning. Plant and equipment capital also based on site experience and the LOM plan
	The methodology used to estimate operating costs.	All overhead costs and operational costs are projected forward on an A$/t based on historical data.
	Allowances made for the content of deleterious elements.	No allowances made.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Corporate guidance.
	The source of exchange rates used in the study.	Corporate guidance.
	Derivation of transportation charges.	Historic performance.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Historic performance.
	The allowances made for royalties payable, both Government and private.	All State Govt. and third party royalties are built into the cost model.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	A$1,500/oz gold
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	All product is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not relevant for gold.
	Price and volume forecasts and the basis for these forecasts.	Corporate guidance.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not relevant for gold.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on historical performance from the mine and current economic forecast seen as representative of current market conditions.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities assessed at varying gold prices.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	No issues.
	Any identified material naturally occurring risks.	No issues.
	The status of material legal agreements and marketing arrangements.	No issues.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	No issues.

Criteria	JORC Code explanation	Commentary
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications are based on Mineral Resource classifications as modified by subsequent grade control drilling and face sampling results.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results accurately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Nil
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	There have been no external reviews of this Ore Reserve estimate
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the model and Ore Reserve ESTIMATE is considered high based on current mine and reconciliation performance.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Estimates are global but will be reasonable accurate on a local scale.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	No modifying factors applied. There is high confidence in these models as the areas is well known and well drilled.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation results from Rubicon, Hornet, Pegasus and Raleigh to date reflects estimates in the Ore Reserve estimates.



Plan View and Section Views of the Raleigh and Skinners Vein deposits

NORTHERN STAR RESOURCES LIMITED



Plan and sections of the Rubicon Hornet and Pegasus Deposits

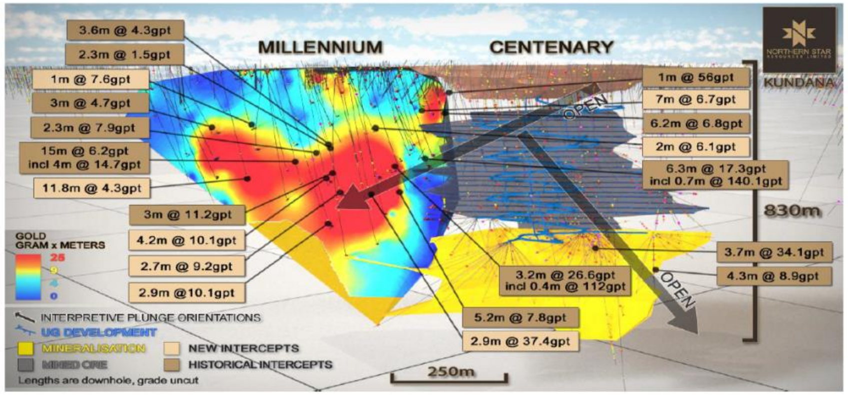


Figure 3: Long Section of the high grade Millennium discovery.

JORC Code, 2012 Edition – Table 1 Report: Carbine (30 June 2016)
Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a combination of Reverse Circulation (RC), Rotary Air Blast (RAB) and Diamond (DD) drilling. RAB drilling was used in areas with no other drilling, where mineralisation is consistent. No areas using RAB drilling was categorised above Inferred status.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. Diamond core was placed in core trays for logging and sampling. Half core samples were nominated by the geologist from diamond core with a minimum sample width of either 20cm (HQ) or 30cm (NQ2).
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for fire assay using a 50gmcharge and AAS analysis.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The resource calculation was based on both historic validated drill data and recent drilling. Recent RC drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Moisture content and sample recovery is recorded for each RC sample.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified during 2014 RC drilling. Recovery was poor at the very beginning of each hole, as is normal for this type of drilling in overburden.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship or bias has identified between grade and sample recovery.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every chip tray.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	There has been no recent Carbine core drilling
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. All samples were intended and assumed to be dry, moisture content was recorded for every sample.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation was conducted at Genalysis Kalgoorlie, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates were taken for RC samples at a rate of 1 in 50.

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50gm FIRE assay charge is used with a lead flux in the furnace. The prill is totally digested by HCl and HNO_3 acids before Atomic Absorption Spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted randomly into the sample sequence at a rate of 1 per 20 samples, except where high grade mineralisation is expected. Here, a blank is inserted after the high grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field duplicates are taken for all RC samples (1 in 50 samples). No field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by another Northern Star geologist during the drill hole validation process, and later by a Competent Person to be signed off.
	The use of twinned holes.	No twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging is directly entered into an Acquire database. Assay files are received in csv format and loaded directly into the database by the project's responsible geologist with an Acquire importer object. Hardcopy and electronic copies of these are stored.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	A planned hole is pegged using a Differential GPS by the field assistants. The final collar is picked up after hole completion by Differential GPS in the MGA 94_51 grid. During drilling single-shot surveys are every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system which measures the gravitational dip and magnetic azimuth results are uploaded directly from the Reflex software export into the Acquire database.
	Specification of the grid system used.	Collar coordinates are recorded in MGA94 Zone 51
	Quality and adequacy of topographic control.	The Differential GPS returns reliable elevation data which has been confirmed against older (early 2000's) topographic surveys.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area varies.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered sufficient for an Inferred Resource.
	Whether sample compositing has been applied.	No compositing has been applied.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of the target is fairly well known. Knowledge of previous orebodies in the area suggests drilling direction is perpendicular to the orientation of mineralisation.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, and tracked through their chain of custody and via audit trails
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits have been undertaken for the drill holes at this stage.

NORTHERN STAR RESOURCES LIMITED

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All drilling in this report are located within Mining Lease M16/239 which is owned by Kundana Gold Pty Ltd, a wholly owned subsidiary of Northern Star Resources. There are no private royalty agreements applicable to this tenement.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Carbine area has been explored since the late 1800's. Numerous companies, including BHP, Newcrest, Centaur Mining, Goldfields, Placer Dome and Barrick have been active in the area.
Geology	Deposit type, geological setting and style of mineralisation.	The Carbine area is considered to be northern extension of the regionally significant Zuleika Shear Zone. The tenements are located in the Norseman-Wiluna Archaean greenstone belt in the Eastern Goldfields province of the Yilgarn Craton, Western Australia. Gold mineralisation in the Zuleika Shear Zone and adjacent greenstone sequences occurs in all rock types, although historical and recent production is dominated by two predominant styles: • Brittle D2 faults with laminated (multiple crack-seal) quartz veining containing gold and trace base metal sulphides (galena, sphalerite, chalcopyrite, scheelite), • Brittle quartz vein stockworks developed within granophyric gabbro within the Powder Sill At the Carbine main deposit, gold is hosted in veins and disseminated sulphides associated with structural disruption caused by a series of thrust faults, where the lower mafic/ultramafic sequence has been thrust over younger sediments.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too numerous to present here. The Carbine resource is based predominantly on historic validated drilling with the addition of recent drilling to validate and extend.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No Exploration results being released.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No Exploration results being released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No Exploration results being released.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No Exploration results being released.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	There is enough historic exploration and production data at Carbine to infer geological continuity in mineralisation.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	No Exploration results being released.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this release.

Criteria	JORC Code explanation	Commentary
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill hole attributes and 'From' and 'To' depths. All target zone intercepts for all eight holes have been reported for this drill program regardless of grade.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other material exploration data has been collected for this area.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further drilling is planned to target extensions.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release.

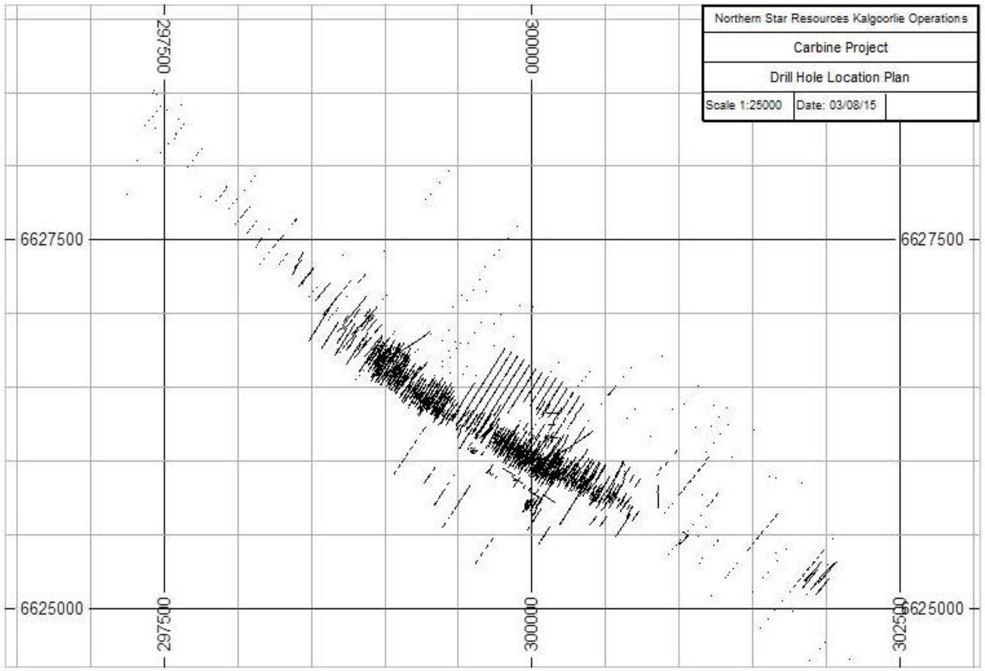
Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.	All data is stored in a digital database with logging of changes and management of data integrity. Validation is enforced when the data is captured. Data is exported to ASCII files before importation into resource modelling software, no manual editing is undertaken on any data during the export/import process The data extracted from the database was accepted as valid.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.	Multiple site visits undertaken by geologists supervising the drilling programs and preparing the geological interpretation.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.	The geological logging data supporting the interpretation was collected over a significant time frame utilizing legends designed by different companies. Some inconsistencies have been noted between the different generations of logging. However, the available data is sufficiently detailed to establish the geological controls on the mineralisation. In addition to the geological logging from drill data, geological mapping from the existing open pit is available and supports the interpretation. The interpretation is consistent with similar known ore bodies in the immediate area There are several known structural offsets in the ore body, however, detailed information on the localised impact of the structural controls is not currently available.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Mineralisation has been identified over a strike length over 2,000m and over a depth of approximately 550m. Mineralisation is between 1m and 20m thick
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modelling of selective mining units.	Drill holes were composited into 2m intervals down hole within each interpreted domain. The composite lengths were allowed to vary between 1.5m and 2.5m to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the uncomposited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. Ordinary Kriging was used in areas with good drill coverage, Simple Kriging was used to estimate areas with poor drill coverage. The local mean value used for Simple Kriging was calculated from the declustered mean of the top-cut composited sample data. Search distances used for estimation based on variogram ranges and vary by domain. Drill spacing is generally around 20m x 20m. Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain. The Kriging neighbourhood was refined using statistical measures of Kriging quality.

Criteria	JORC Code explanation	Commentary
	Any assumptions about correlation between variables. Description of how the geological interpretation was used to control the resource estimates. Discussion of basis for using or not using grade cutting or capping. The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The estimated grades were assessed against sample grades and against declustered mean values
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnes were assumed to be dry.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Cut-off grades for reporting the resource were developed using a gold price of A$1,700 per ounce and budgeted mining costs for 2016/17.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	An open pit optimization study was conducted to determine the portion of the more to report as the resource with the potential pit shell evaluated using a gold price of $A1,700/oz. Mining costs typical of those currently available for an operation of the anticipated size were assumed. The optimization study allowed for mining dilution of 10% and 98% ore recovery. Metallurgical recovery was assumed to be 93% based on past production records.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical recovery factors have been developed based on extensive experience processing similar material from the Kanowna area and based on past production records.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a green fields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The utilisation of existing Kundana/Kanowna infrastructure will minimise the impact of development of the project. Existing waste rock and tailings storage facilities have adequate available capacity to accommodate the project.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk density measurements from project drilling and from past production within the area were used to assign values within interpreted weathering horizons.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person's view of the deposit.	The classification of the resource was based on a series of factors including: - Geological and grade continuity - Density of available drilling - Statistical evaluation of the quality of the kriging estimate
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The resource model has been reviewed internally by Northern Star staff.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Carbine style of mineralisation. The estimate is considered to be robustly estimated on a global scale for material classified as Inferred.

Criteria	JORC Code explanation	Commentary
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	



JORC CODE, 2012 EDITION – TABLE 1 REPORT: HORNET PIT– 30 JUNE 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a combination of Reverse Circulation (RC) and Diamond Drilling (DD). RC drilling was used to drill pre-collars for many of the resource definition holes with diamond tails. Diamond drilling constitutes the remainder of the drilling.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist from both NQ2 and HQ diamond core, with a minimum sample width of either 20cm (HQ) or 30cm (NQ2). RC samples were split using a rig-mounted cone splitter on 1m intervals to obtain a sample for assay. 4m Composite spear samples were collected for most of each hole, with 1m samples submitted for areas of known mineralization or anomalism.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	Samples were taken to Genalysis Kalgoorlie for preparation by drying, crushing to <3mm, and pulverising the entire sample to <75µm. 300g Pulps splits were then dispatched to Genalysis Perth for 50g Fire assay charge and AAS analysis.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC, face sampling, grade control and Diamond Drilling techniques were used at the K2 deposits. Diamond drillholes completed pre-2011 were predominantly NQ2 (50.5mm). All resource definition holes completed post 2011 were drilled using HQ (63.5mm) diameter core. Core was orientated using the Reflex ACT Core orientation system. RC Drilling was completed using a 5.75" drill bit, downsized to 5.25" at depth. 2 RC pre-collars were drilled followed by diamond tails. Pre-collar depth was to 160m or less if approaching known mineralization.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC drilling contractors adjust their drilling approach to specific conditions to maximise sample recovery. Moisture content and sample recovery is recorded for each RC sample. No recovery issues were identified in the RC drilling.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling the contractors adjust their rate of drilling and method if recovery issues arise. All recovery is recorded by the drillers on core blocks. This is checked and compared to the measurements of the core by the geological team. Any issues are communicated back to the drilling contractor.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery was excellent for diamond core and no relationship between grade and recovery was observed. For RC drilling, pre-collars were ended before known zones of mineralization and recovery was very good through any anomalous zones, so no issues occurred.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core is logged for Regolith, lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features are also taken through oriented zones.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	All logging is quantitative where possible and qualitative elsewhere. A photograph is taken of every core tray.
	The total length and percentage of the relevant intersections logged.	RC sample chips are logged in 1m intervals for the entire length of each hole. Regolith, lithology, alteration, veining and mineralisation are all recorded.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All Diamond core is cut and half the core is taken for sampling. The remaining half is stored for later use.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	All RC samples are split using a rig-mounted cone splitter to collect a 1m sample 3-4kg in size. These samples were submitted to the lab from any zones approaching known mineralization and from any areas identified as having anomalous gold. Outside of mineralized zones spear samples were taken over a 4m interval for composite sampling.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sampling quality is deemed appropriate

Criteria	JORC Code explanation	Commentary
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Field duplicates were taken for RC samples at a rate of 1 in 20
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Sample preparation was conducted at Genalysis Kalgoorlie, commencing with sorting, checking and drying at less than 110°C to prevent sulphide breakdown. Samples are jaw crushed to a nominal -6mm particle size. If the sample is greater than 3kg a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg (typically 1.5kg) at a nominal <3mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g Pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Grind checks are performed at both the crushing stage(3mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g Fire assay charge is used with a lead flux, dissolved in the furnace. The prill is totally digested by HCl and HNO3 acids before Atomic absorption spectroscopy (AAS) determination for gold analysis.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established.	Certified reference materials (CRMs) are inserted into the sample sequence randomly at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations are re-assayed with a new CRM. Blanks are inserted into the sample sequence at a rate of 1 per 20 samples, This is random, except where high grade mineralisation is expected where blanks are inserted after the high grade sample to test for contamination. Failures above 0.2gpt are followed up, and re-assayed. New pulps are prepared if failures remain. Field Duplicates are taken for all RC samples (1 in 20 sample). No Field duplicates are submitted for diamond core.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections are verified by a Northern Star geologist during the drill hole validation process, and later by a Competent person to be signed off
	The use of twinned holes.	No known twinned holes were drilled for this data set
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.	Geological logging is captured using a wireless remote Acquire database if there network is available. If network is unavailable, data is entered via a remote licence set up into an offline Acquire database then transferred later into the live database. Both a hardcopy and electronic copy of these are stored, as well as being loaded in to the database using automatic acquire loaders. Assay files are received in csv format and loaded directly into the database by the Database administrator (DBA). A geologist then checks that the results have inserted correctly. Hardcopy and electronic copies of these are stored. No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Planned hole locations are pegged using a Differential GPS by the field assistants The collar positions for underground diamond holes are located by the mine surveyors, During drilling, single-shot surveys are every 30m to ensure the hole remains close to design. This is performed using the Reflex Ez-Trac system. Upon hole completion, a gyroscopic survey is conducted by ABIMS taking readings every 5m for improved accuracy. Measurements are taken with reference to true north.
	Specification of the grid system used.	All data is collected using the local mine grid.
	Quality and adequacy of topographic control.	Quality topographic control has been achieved through Lidar data and survey pickups of holes over the last 15 years.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the area varies. For resource definition drilling, spacing was typically 20m x 20m to allow the resource to be upgraded to an Indicated Resource.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is considered appropriate for Resource and Ore Reserve classification
	Whether sample compositing has been applied.	No compositing has been applied to these exploration results, although composite intersections are reported.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The majority of the structures in the Kundana camp dip steeply (80°) to WSW. The Mary Fault structure has a shallow dip but orients to the NW, approximately 60°. To target these orientations the drillhole dips of 60-70° towards ~060° achieve high angle intersections on all structures.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission samples are stored by Northern Star Resources in a secure yard. Once submitted to the laboratories they are stored in a secure fenced compound, and tracked through their chain of custody and via audit trails
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits or reviews have recently been conducted on sampling techniques.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes mentioned in this report are located within the Mining Lease M16/309 held by The East Kundana Joint Venture (EKJV). The EKJV is majority owned and managed by Northern Star Resources Limited (51%). The minority holding in the EKJV is held by Tribune Resources Ltd (36.75%) and Rand Mining Ltd (12.25%). Mining Lease M16/309 is subject to two royalty agreements. The agreements that are on M16/309 are the Kundana- Hornet Central Royalty and the Kundana Pope John Agreement No. 2602-13.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Since the late 1990's the Hornet area has been drilled heavily, initially by Gilt Edge Mining (GEM) then by Goldfields Exploration Pty Limited who drilled extensively from Hornet all the way to Drake prospects. By 2001-2002, AurionGold Pty Limited had undertaken two infill programs totalling 43 DD and 63 RC holes. In 2003, Placer Dome Asia Pacific (PDAP) acquired 100% ownership and undertook infill drilling programmes for the K2, K2A, K2B and the Mary fault mineralisation. By mid-2003, PDAP drilled a grade control program to cover the K2 mineralisation to a depth of 35m below surface. Since 2003 the drilling campaigns around the Hornet project area has ceased until late 2000's when Barrick Gold drilled a few holes around the Mary Fault area.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by the Zuleika shear zone, which separates the Coolgardie domain from the Ora Banda domain. K2-style mineralisation (Hornet) consists of narrow vein deposits hosted by shear zones located along steeply-dipping overturned lithological contacts. The K2 structure is present along the contact between a black shale unit (Centenary shale) and intermediate volcanoclastics (Spargoville formation). Minor mineralization, termed K2B, also occurs further west, on the contact between the Victorious Basalt and Bent Tree Basalt (both part of the regional upper Basalt Sequence). A shallow dipping fault, offsets the K2 structure at the south end of Hornet. This contact exists as a brecciated material hosting within the intermediate volcanoclastic tuff.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically list the complete dataset however a summary report has been collated to reflect the hole positions used for estimation.

Criteria	JORC Code explanation	Commentary
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	The exclusion of this data will not adversely impact on the understanding of this release.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration drill hole data is being released.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration drill hole data is being released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration drill hole data is being released.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration drill hole data is being released.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration drill hole data is being released.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	No exploration drill hole data is being released.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in the body of this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	No exploration drill hole data is being released.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Metallurgical test work was conducted on 7 hornet holes in 2011 with gold recoveries following cyanidation above 95%. Lime consumption was high and cyanide consumption was low.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Further work will continue in the near future to further attempt to extend the shallow Hornet mineralisation further north towards Rubicon. The drilling extents between Hornet and Rubicon is very sparse.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Future work may be conducted to test the continuity of mineralisation between Hornet and Rubicon

Section 3 Estimation and Reporting of Mineral Resources

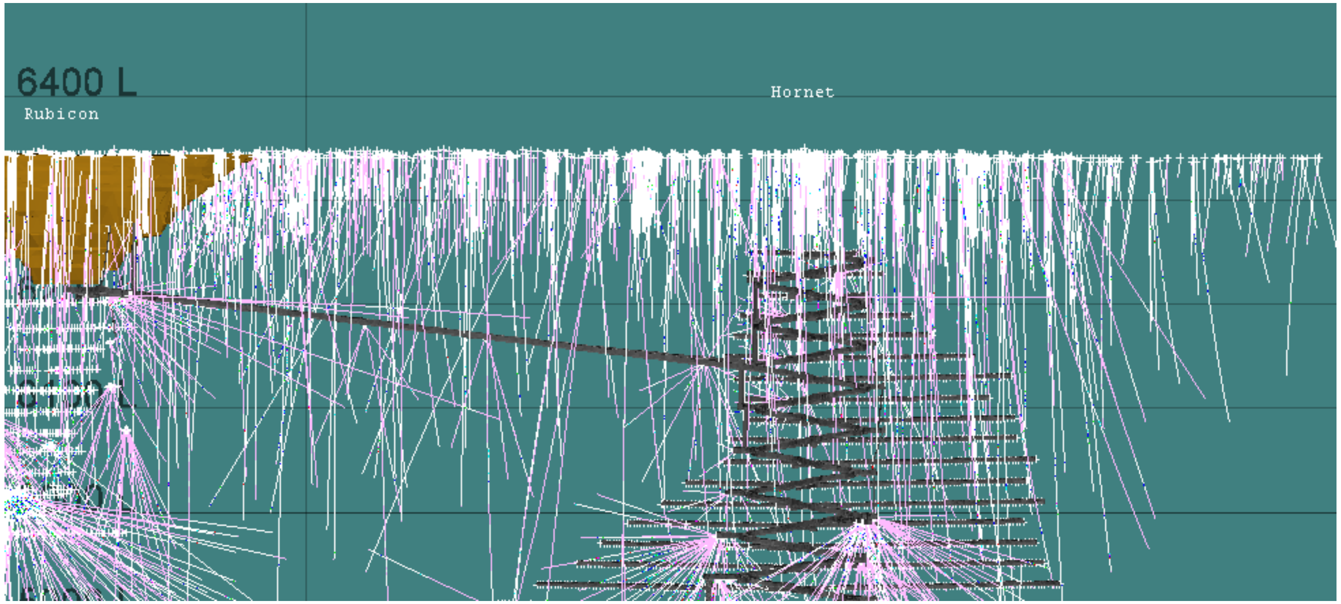
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is either recorded on paper and manually entered into to an Acquire database, or transferred from a logging laptop into Acquire via an offline database. There are checks in place to avoid duplicate holes and sample numbers.
	Data validation procedures used.	Where possible, raw data is loaded directly to the database from laboratory and survey derived files.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	This resource estimate has been conducted by geologists working in the exploration department and in direct, daily contact with the ore body data used in this resource estimate.
	If no site visits have been undertaken indicate why this is the case.	Multiple site visits undertaken by geologists supervising the drilling programs and preparing the geological interpretation.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource. The confidence in the geological interpretation is high with the information gained from ore development and underground drilling.

Criteria	JORC Code explanation	Commentary
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drillholes, 3D photogrammetry, structures.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed.
	The use of geology in guiding and controlling Mineral Resource estimation.	The interpretation of the main K2 structure is based on the presence of quartz veining and continuity between sections on the K2 structure. Drill core logging and face development mapping is used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity is affected by the orientation of the K2 structure, and several dextral offset fault structures
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Strike length = > 600m Width = ~1-2m average Depth = from surface to ~500m maximum below surface
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	The K2 domain mineralisation was subdivided into three zones to separate the main high grade core and the low grade Hanging wall and footwall alteration halos. The K2 core was defined by the presence of quartz, the alteration zones were constrained based on grade. 3 dimensional wireframes were created in Datamine Studio to define the volumes for the mineralised domains. Simple Kriging was used to estimate the Hornet resource. Drill holes were composited into 1m intervals down hole except for the supergene domains which were composited to 2m. The composite lengths were allowed to vary between 0.5m and 1.5m to ensure that no sampling was lost during the compositing process. The average grade and total length of the composite data was compared against the average grade and total length of the uncomposited data to check the compositing process. The distribution of composite lengths was checked to ensure that the majority of the composites were close to the targeted length. The local mean value used for Simple Kriging was calculated from the declustered mean of the top-cut composited sample data. Search distances used for estimation based on variogram ranges and vary by domain. Drill spacing is generally around 20m x 20m for the Indicated resource and around 40m x 40m for the Inferred resource. Top-cuts were applied to the sample data based on a statistical analysis of the data and vary by domain. The Kriging neighbourhood was refined using statistical measures of Kriging quality. The estimated grades were assessed against sample grades and against declustered mean values
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Post estimation, resource estimations do not have tonnage or grade factors applied.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation
	Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Parent cell size is 10m x 10m x 10m. Sub-cell to 2.5m x 2.5m to suit the narrow north-south orientation of the majority of the domains. Search ellipsoids vary for each domain but are typically around 50 – 100m down plunge, 50m across plunge and 5m perpendicular to plunge.
	Any assumptions behind modelling of selective mining units.	No assumptions made.
	Any assumptions about correlation between variables.	No assumptions made.
	Description of how the geological interpretation was used to control the resource estimates.	"Mineralisation" wireframes are created within the geological shapes based on drill logging, face samples, and grade. Low grades can form part of an ore wireframe.
	Discussion of basis for using or not using grade cutting or capping.	Top-cuts were applied to the composited sample data with the intention of reducing the impact of outlier values on the average grade. Top cuts were selected based on a statistical analysis of the data with a general aim of not impacting the cut mean by more than 5%. Values selected range from 5gpt to 150gpt and vary by domain.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation is through swath plots comparing composites to block model grades, along 20m eastings and RL. Visual checks were also made comparing model grades against the supporting sample data.

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Cut-off grades for reporting the resource were developed using a gold price of A$1,700 per ounce and budgeted mining costs for 2015/16.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Historical mining and reconciliation data does not affect wire frame interpretation.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Metallurgical recovery factors have been developed based on extensive experience processing similar material from the Kundana area.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	A "Licence to Operate" is held by the operation which is issued under the requirement of the "Environmental Protection Act 1986", administered by the Department of Environment (DoE). The licence stipulates environmental conditions for the control of air quality, solid waste management, water quality, and general conditions for operation. Groundwater licenses are held for water abstraction, including production borefield water use for mineral processing, and mine dewatering, in accordance with the Rights in Water and Irrigation Act 1914. These licenses are also regulated by DoE and are renewable on a regular basis. Kanowna Operations conduct extensive environmental monitoring and management programs to ensure compliance with the requirements of the licences and lease conditions. An Environmental Management System is in place to ensure that Northern Star employees and contractors exceed environmental compliance requirements. The Kalgoorlie operations are fully permitted including groundwater extraction and dewatering, removal of vegetation, mineral processing, and open pits. Kalgoorlie Operations have been compliant with the International Cyanide Management Code since 2008.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density was determined from surface diamond drillholes with intervals taken from mineralized and non-mineralised zones within the project area. The bulk densities are derived from wet and dry weighting of core no greater than 30cm total length with core samples selected by changes in lithology/alteration or every 30-40m where no change is evident.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	No/minimal voids are encountered in the ore zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities are applied to domains for the ore zone and interpreted weathering domains
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on a series of factors including: • Geologic grade continuity • Density of available drilling • Statistical evaluation of the quality of the kriging estimate
	Whether appropriate account has been taken of all relevant factors (ie. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This mineral resource estimate is considered representative.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This resource has not been audited externally. Previous estimates of this area utilising the same, or very similar variables, have been reviewed by internal parties with protocols deemed appropriate.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This mineral resource estimate is considered as robust and representative of the Kundana style of mineralisation. The application of geostatistical methods has helped to increase the confidence of the model and quantify the relative accuracy of the resource.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the entirety of the K2 ore zone and surrounding dilution skins. Each of these will show local variability even though the global estimate reflects the total average tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No comparison with production data has been made.



Long section of all drilling in the Hornet Pit area

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve is based on updated or depleted resource models for all areas of Rubicon/Hornet.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of Ore Reserves.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No site visit has been conducted by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been conducted by multiple personnel involved in the project from NST. The Competent Person is satisfied that the descriptions of the planned infrastructure and locality provided by NST along with the surveyed 3D topography are sufficient information to carry out the mine design and classify the Ore Reserves.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Pre-Feasibility
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	As above.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	Cut-off grades were determined based on unit costs from the "pre-feasibility level" mining cost model. Costs have been sourced from contractor quotes based on a mine of similar size.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Ore Reserves have been calculated by generating detailed mining shapes for the proposed open pit. All open pit mining shapes include planned and unplanned dilution, being waste material that is located within the minable shape. Open pit unplanned dilution has been modelled within the mining shapes as a skin of material likely to be taken additional to material considered to be the smallest mining unit (SMU). This method is considered to be appropriate given the expected ground conditions, orebody width and proposed mining style.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	The selected mining methods for the Hornet deposit are of a bench mining open pit method. The proposed open pit is to be mined using conventional open pit mining methods (drill, blast, load and haul) by a mining contractor utilising 120 t class excavators and 90 t trucks. This method is used widely in mines across Western Australia and is deemed appropriate given the mature of the ore body.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.	Pit wall slopes are based on recommendations provided by Barrick geotechnical reviews and based upon expected rock type, weathering profile and depth below surface.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	The mineral resource supplied by NST has been used for the open pit optimisation. To generate a series of 'nested' pit shells, a series of inputs are required to sufficiently estimate the value of the material being mined and the cost of extraction. The optimisation requires an economic value for each block in the model, as well as mining and milling costs. The cost of each block is derived from mining and processing costs, with the mining cost related to the block depth and the milling cost only being used if the block can be economically mined. Mining costs were based on quoted rates from a surface mining contractor for similar scaled operations. Revenue assumptions have been provided by Northern Star.
	The mining dilution factors used.	Physicals are reported within the generated mining shapes for the open pit Ore Reserve. SMU shapes have been generated for the reporting of Ore Reserve physicals. Dilution accounted for within the SMU is 18%; that is waste material carried within the mining shape. Mining recovery is considered to be 100% of the SMU.
	The mining recovery factors used.	No recovery factors were applied.
	Any minimum mining widths used.	The SMU dimensions for the Ore Reserve Estimate are 2.0 m Wide x 5.0 m High x 5.0 m Long.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material has not been included within this Ore Reserve estimate (treated as waste) but has been considered in LOM planning. It is assumed that Inferred material will be converted to Ore Reserve via grade control drilling which has been provided for and will be carried out ahead of mining.
	The infrastructure requirements of the selected mining methods.	Infrastructure required for the proposed Hornet Open Pit have been accounted for and included in all work leading to the generation of the Ore Reserve estimate. As there is currently infrastructure in place for the Rubicon/Hornet underground operations and the life of the project is limited planned infrastructure includes: • Offices, workshops and associated facilities; • Dewatering pipeline;

Criteria	JORC Code explanation	Commentary
		• Access Road; • Waste Dump; and • RoM Pad. Processing will be conducted offsite at NST Konawa Bell operation, hence no processing infrastructure is required.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Ore from the Hornet Open Pit operations is treated at the NST owned Kanowna Belle processing facility located adjacent to the Kanowna Belle mine. The plant is designed to handle approximately 1.8 million tonnes of feed per annum and has the capability to treat both refractory and free milling ores through the flotation circuit and associated concentrate roaster circuit, including carbon-in-leach (CIL) gold recovery, or bypassing the flotation circuit and going directly to a CIL circuit that is designed to treat flotation tails. Ore from the Rubicon/Hornet underground operations is currently processed at the Kanowna Bell facility.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested for surface and underground ore.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Metallurgical test work was carried out by ALS Ammtec on representative samples for the Hornet deposit. Based on current information provided by NST from Kanowna Bell metallurgical recovery factors are as follows: • Oxide – 94% • Transitional – 94% • Fresh – 94%
	Any assumptions or allowances made for deleterious elements.	There has been no allowance for deleterious elements.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	Metallurgical test work was carried out by ALS Ammtec on representative samples for the Hornet deposit.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Not applicable, gold only.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	Environmental impacts and hazards are being considered as part of the DOIR application process. Waste rock characterisation and hydrogeological investigations indicates the rock mass is considered non-acid forming. Tailings from the open pit operation are proposed to be stored within the existing Tailings Storage Facility (TSF) at Kanowna Bell. A previously granted clearing permit has expired. This will be re-applied for and expected to be granted closer to expected start of the pit.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	There is currently infrastructure in place for the Rubicon/Hornet underground operations. Additional infrastructure is planned for the planned Hornet operations. TSF facilities are located Kanowna Belle processing facility located adjacent to the Kanowna Belle mine. It has been assumed that all development of surface infrastructure will be completed to enable to development of the Hornet Open Pit Resource. It has been assumed that there will be sufficient water available to develop the Project.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital and operating costs have been sourced from supplier and contractor quotes as well as Entech's cost database through the "pre-feasibility study" process.
	The methodology used to estimate operating costs.	A capital and operating cost model has been developed and has been used to complete a life of mine cash flow estimate.
	Allowances made for the content of deleterious elements.	Nil allowance, none expected.
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Single commodity pricing for gold only, using a long-term gold price of A$1,500 per ounce as per NST corporate guidance
	The source of exchange rates used in the study.	NST report in Australian dollars. Therefore, no exchange rate is used or required
	Derivation of transportation charges.	All transportation charges are based supplier and contractor quotes. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.

Criteria	JORC Code explanation	Commentary
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on data supplied by NST. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
	The allowances made for royalties payable, both Government and private.	WA State Government royalty of 2.5%. This cost component has been used to determine the cut-off grades as well as applied to the operating cash flow estimate.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	Revenue has been based on the commodity price and exchange data provided by NST. Single commodity pricing for gold only, using a long-term gold price of A$1,500 per ounce. 2.5% WA State Government royalty.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Corporate guidance.
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Gold doré from the mine is to be sold at the Perth Mint.
	A customer and competitor analysis along with the identification of likely market windows for the product.	Not applicable.
	Price and volume forecasts and the basis for these forecasts.	Not applicable.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Not applicable.
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	The Ore Reserve estimate is based on a financial model for that has been prepared at a "pre-feasibility study" level of accuracy economic modelling. All inputs from mining operations, processing, transportation and sustaining capital as well as contingencies have been scheduled and evaluated to generate a full life of mine cost model. Economic inputs have been sourced from suppliers or generated from database information relating to the relevant area of discipline. A discount rate of 0% has been applied. The NPV of the project is strongly positive at the assumed commodity prices.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	Sensitivities were conducted on metal price fluctuations of A$1,500 ± $200 per ounce. Due to the current short life, the project is not seen as highly sensitive to cost inputs.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	None
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	All permitting was in place but the clearing permit has expired. This will be re-applied for and expected to be granted closer to expected start of the pit.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves are reported as Probable classification which is made up of only Indicated Resource material. The Ore Reserve shapes have been generated using practical mining constraints.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Measured Mineral Resource contributes to Probable Ore Reserves.

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserves reporting processes has been subjected to an internal review by Entech's senior technical personnel in July 2016.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	The design, schedule and financial model on which the Ore Reserve is based has been completed to a "pre-feasibility study" standard, with a corresponding level of confidence.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	All modifying factors have been applied to design mining shapes on a global scale.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	The Ore Reserve is quoted to a "pre-feasibility' level. There is high confidence in the modifying factors and quoted Ore Reserve as physicals have been reported within minable shapes optimised to the SMU within the final pit design.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	

NORTHERN STAR RESOURCES LIMITED

JORC CODE, 2012 EDITION – TABLE 1 REPORT: BARKERS – 30 JUNE 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using a combination of Reverse Circulation (RC) and Diamond Drilling (DD). Face samples were taken underground at the heading using a rock pick. Diamond core was transferred to core trays for logging and sampling. Half core samples were nominated by the geologist and based upon geological and ore-zone boundaries, with the remaining sampled on metre intervals.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Samples were taken to independent commercial labs predominantly ALS - Chemex Kalgoorlie. The majority of diamond core was analysed for gold by 50g-charge fire assay with the Barkers vein being analysed by Screen Fire Assay. The drill data set also includes samples assayed by 30g fire assay and 500g cyanide leach assays.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	RC drilling was used to drill seven pre-collars these ranged in depths from 40m-99m. RC samples were split using a rig-mounted cone splitter on one metre intervals to obtain a sample for assay. The RC drilling does not affect sampling of the Barkers Main Vein.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	RC and DD techniques were used at Barkers South with DD holes predominantly being NQ2, NQ, BQ sized. Core was orientated and the bottom of hole line was used as a cutting line (slightly offset for preservation of the orientation line on the retained half core). RC drilling was used for precollars only and therefore does not apply to the major mineralised zones.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	Drill core recovery was excellent, any poor recovery was accounted for by demarcating lost intervals with core blocks and then logging sample loss intervals accordingly.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For diamond drilling recovery was recorded by the drillers on core blocks. Core photos demonstrate that recovery was excellent throughout the mineralised zone(s).
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Recovery was excellent for DD with no core loss in the major mineralised zones. No known relationship or bias has been observed in the major mineralised zones.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All diamond core was logged for lithology, veining, alteration, mineralisation and structure. Structural measurements of specific features were not generally taken. RC sample chips were logged in 1m intervals for the entire length of each hole. Lithology, alteration, veining and mineralisation were all recorded
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	All logging was quantitative where possible and qualitative elsewhere. A photograph was taken of every core tray. These photographs are hard-copy only, but are readily accessible.
	The total length and percentage of the relevant intersections logged.	In all instances, the entire drill hole was logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	All sampled diamond core was cut and half the core was taken for sampling. The remaining half is stored for later use.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	For the zone of mineralisation reported, RC drilling was only used for drill hole pre-collars and the RC sampling methodology is not relevant as all mineralised zones were drilled and sampled with diamond core.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation was conducted at independent laboratories in Kalgoorlie, commencing with sorting, checking and drying. Samples were prepared in accordance with industry standard practice at the time.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	QAQC practices were representative of industry standard practice at the time of collection.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	QAQC practices were representative of industry standard practice at the time of collection. No duplicate or second-half samples were assayed.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Half core samples of NQ and HQ drill sizes are considered appropriate for this style of mineralisation. Some samples are from BQ core which, for this mineralisation style, present a high degree of variability in the resultant assay, however BQ core was used only where drilling issues prohibited the continuance of NQ drilling.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 30gm or 50gm fire assay charge was used with a lead flux in the furnace. The prill was totally digested by hydrochloric and nitric acids before atomic absorption spectroscopy (AAS) determination for gold analysis. Ore zones were commonly analysed using screen fire assay analysis if significant coarse gold was visible within the core. The fire assay and screen fire assay techniques are considered total assay techniques. Some ore zones were assayed by 500g cyanide leach with fire assayed tails on high grade samples indicating near total digestion of the gold.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie. lack of bias) and precision have been established.	QAQC utilised was reflective of industry standard at the time these samples were collected and the lab used certified reference materials and blanks for internal QAQC practices. Company standards of gold concentrations unknown to the laboratory were not routinely used when these holes were drilled.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections have been verified by a Northern Star geologist during the drill hole validation process.
	The use of twinned holes.	No twinned holes were drilled for this data set
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging and other data was transferred from paper logs into the database; hardcopies of these are stored and accessible.
	Discuss any adjustment to assay data.	No adjustments are made to this assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	The collar location of drill holes was determined by theodolite by a mine surveyor for all drill holes underground or surface.
	Specification of the grid system used.	Collar coordinates were originally recorded in the local mine grid and were transformed to Map Grid of Australia, Zone 51.
	Quality and adequacy of topographic control.	The theodolite pickups returned reliable elevation data which has been validated against mine development surveys and surface topography.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill hole spacing across the deposit varies but a 60m x 40m grid approximates the distribution across most of the reported resource.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The data spacing is sufficient for Inferred Resource estimate purposes
	Whether sample compositing has been applied.	Samples were collected on a nominal one metre length to honour significant geological boundaries. These samples were not composited before assay.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	All drilling was oriented as close to perpendicular as practical to the orientation of the Barkers Vein.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Sample security at the time of drilling, sampling and assaying is unknown, but believed to be as per industry practice at the time.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audit has been undertaken for the historic drill holes at this stage; it is presumed that best practices for drilling were applied and understood at the time.

NORTHERN STAR
RESOURCES LIMITED

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes mentioned in this report are located within Mining Lease M16/72 and M16/97 which is owned by Kundana Gold Pty Ltd, a wholly owned subsidiary of Northern Star Resources Limited. There are no private royalty agreements applicable to this tenement. The deposits lie within vacant crown land.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	All drilling and exploration of the Barkers resource was conducted by previous owners of the tenements (including Pancontinental Gold, AurionGold, Placer Dome Inc, Barrick Gold) prior to the acquisition by Northern Star Resources.
Geology	Deposit type, geological setting and style of mineralisation.	The Kundana camp is situated within the Norseman-Wiluna Greenstone Belt, in an area dominated by major mineralised shear zones. Barkers-style mineralisation consists of narrow vein deposits (0.20m to 1.0m thick) hosted by shear zones located along steeply-dipping overturned lithological contacts. The footwall stratigraphy of Barkers consists of several different units of the Powder Sill Gabbro, a thick stratigraphy-parallel differentiated mafic intrusive. The volcanoclastic sedimentary rocks of the hanging-wall consist of a sequence of interbedded siltstones, felspathic sandstones, felspathic-lithic wackes and felspathic-lithic rhyolites.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	See Appendix 2 for a table of results. All holes and relevant information for the estimation is listed in the table. Surrounding holes in the same system are too numerous to list. Face samples used in the estimate are also too numerous to list.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of surrounding drill information will not detract from the understanding of the report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.	No assay results have been top-cut for the purpose of this report.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No assay results have been top-cut for the purpose of this report.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used for the reporting of these results.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The target structure is very planar and its orientation well constrained, allowing very reliable calculations of true widths. True widths have been calculated for all reported intersections.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	Both the downhole width and true width have been clearly specified when used.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	See below for schematic cross section of Barkers As the majority of drilling used in this estimate is underground diamond drilling a collar plan is not appropriate.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All valid drill holes within the estimated area have been reported with some holes in the area excluded. Holes were not excluded based on grade or width of the mineralised zone, only on the basis of confidence in the data. Excluded holes consist only of poorly geo-located holes as indicated by discontinuity the position of mineralisation or known geological contacts.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No other material has been collected
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	Additional drilling and modelling is underway on the project (as of July 2016). Systematic validation of the historical results is also planned, that will include resampling of old core to current QAQC standards. This verification may allow for an increase in confidence in the resource category.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	See below.

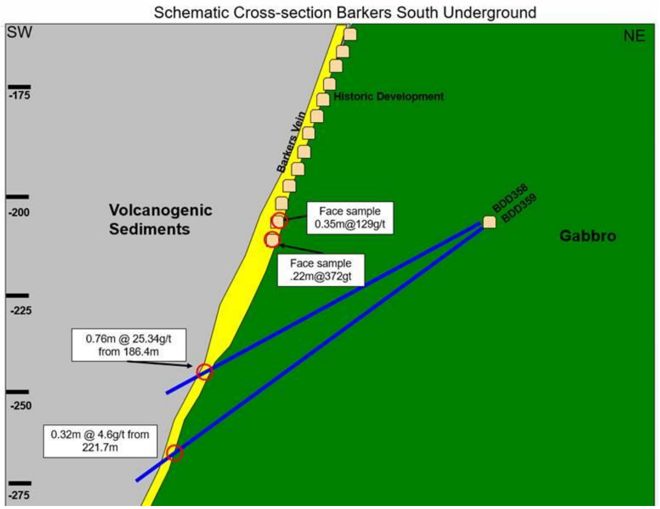
Section 3 Estimation and Reporting of Mineral Resources

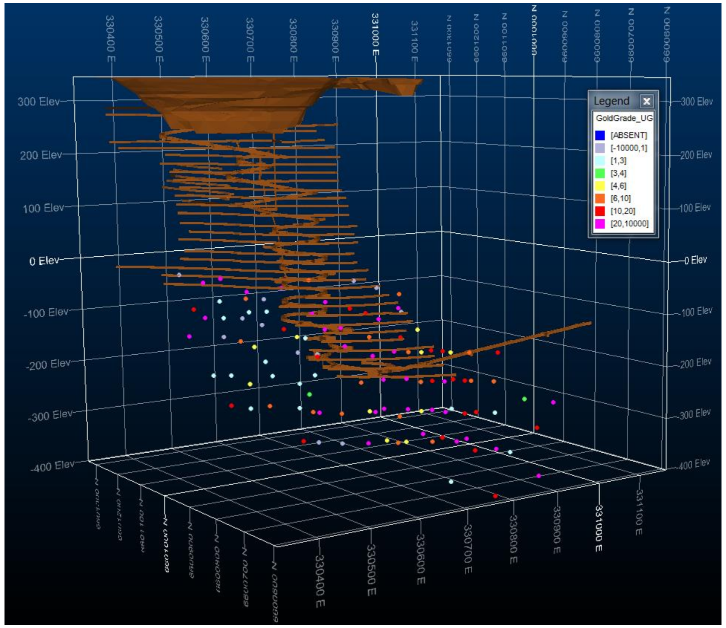
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	All data of this era was collected in hardcopy and data-entered into a geological database. All hardcopy records were archived and are readily accessible for data verification. Spot checks have shown only rare issues with the database integrity, generally affecting the surveyed position of the drill hole. Holes with such issues have been excluded from this estimate, but consultation with the original hard copy data may allow for some of these errors to be fixed for future resource estimates.
	Data validation procedures used.	Random checks through use of the data and data validation procedure prior to resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	No site visits were conducted.
	If no site visits have been undertaken indicate why this is the case.	The Competent Person was contracted offsite and was provided the data for estimation from Northern Star Resources geologists.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The encompassing mineralisation solid has been provided by Northern Star geologists derived from existing underground development from which face sampling confirms a high degree of confidence in the geological interpretation.
	Nature of the data used and of any assumptions made.	The interpretation has used a combination of DD drilling (predominantly diamond), underground face samples and production data to define the extents.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The mineralisation is consistent with the mined areas of the deposit and no alternative interpretations have been investigated.
	The use of geology in guiding and controlling Mineral Resource estimation.	The Barkers South mineralisation is hosted within a quartz vein which occurs at the sheared contact between a gabbro and volcanics package - this contact has been used to guide the interpretation of the HW and FW surfaces.
	The factors affecting continuity both of grade and geology.	High and low grade plunging shoots have been identified within the overall mineralised system - these have been sub-domained to ensure that mixed populations have not been included in the estimation
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The modelled mineralisation extends approximately 600m along strike with a 400m vertical extent - the modelled area only represents a portion of the mineralised dip extent.
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	The footwall and hangingwall surfaces have been digitised and modelled using the gabbro-volcanics contact as a guide in Datamine Studio3 software. These two surfaces have been combined to obtain a consistent and valid 3-D solid that honours the drill-hole intercepts and vein widths.

Criteria	JORC Code explanation	Commentary
		The solid wireframe has been imported into Vulcan V10.1 software where zones of consistent grade have been grouped together and divided into LG, MG and HG sub-domains. The drill hole database has then been flagged using the mineralisation domains with 0.5 m composites extracted for geostatistical analysis using Snowden Supervisor software. Extreme composite grades have been capped at appropriate levels for each mineralised sub-domain. Continuity analysis has been undertaken on the combined sub-domains to guarantee enough samples to produce decent continuity models. Log transform variograms have been produced with these back-transformed in Supervisor prior to exporting the results for use in Vulcan. Kriging Neighbourhood analysis using Snowden Supervisor V8.5 has been undertaken for each sub-domain to ensure that the most appropriate estimation parameters have been used. A block model has been constructed in two parts with parent block sizes ranging from 10 m (X) by 10 m (Y) and 25 m (Z) to 5 m (X) by 5 m (Y) by 10 m (Z) depending on the relevant sample density - parent block sizes generally represent half the drill hole spacing. Gold grades have been estimated using three interpolation passes with the mineralised domains used as hard boundaries during the interpolation. Search ellipses have been set at a proportion of the variogram range with increasing ranges used for subsequent passes - with the proportion ranging from half the distance of the first structure in the variogram range for the first interpolation pass to the range of the variogram for the third pass. Five samples have been used as the minimum required for estimation samples depending on mineralised domain thickness with the maximum number of samples set at 15 samples. Subsequent interpolation runs have used a decreased number of minimum samples in the interpolation. Gold grade estimation has been undertaken using an Ordinary Kriging interpolation method in Vulcan V9.1 software, which is considered appropriate for this type of mineralisation.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The Mineral Resource estimate takes into account previous mine production records for this deposit at the time of this estimate.
	The assumptions made regarding recovery of by-products.	No by-products have been estimated.
	Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	No deleterious elements have been identified for this deposit and none have been estimated.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	The parent block size selected varied depending on the relative drill density of that section of the deposit with the size selected being half the drill spacing. Sub-celling to either 1 m (X) by 1 m (Y) by 1 m (Z) or 2 m (X) by 2 m (Y) by 5 m (Z) has been employed for effective volume definition with the sub-cells estimated within the parent block. The search ellipses used during the estimation of gold grades have ranged from half the range of the first structure in the first pass, to the variogram range for the third pass.
	Any assumptions behind modelling of selective mining units.	No assumptions have been made for selective mining units
	Any assumptions about correlation between variables.	No other variables have been estimated within the MRE.
	Description of how the geological interpretation was used to control the resource estimates.	The sub-domains have been used as hard boundaries during the estimation of the gold grades effectively removing the smearing of grades between areas of different grade populations
	Discussion of basis for using or not using grade cutting or capping.	Extreme values have been cut to reduce their influence during the estimation. These have been assessed for each sub-domain separately using a combination of histograms, log probability plots and mean variance plots. The effect of the grade cutting has been minimal to the mean grade of the population
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Final grade estimates have been validated by statistical analysis and visual comparison to the input de-clustered composite data for each domain with the grouped domains assessed using Northing, Easting and RL swath plots comparing the declustered composite grades with the block model grades
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	All tonnages have been estimated on a dry basis.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	A cut-off grade of 3.0 gpt gold has been used to report the mineralisation for Barkers South - this has been assessed using the tonnage grade curve and is considered suitable for the style of mineralisation and depth of the deposit which will require underground mining techniques to exploit the resource.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It has been assumed that the mining of Barkers South will be undertaken using mechanised underground mining methods as in use at the Raleigh deposit although this has not influenced the interpretation of the mineralisation extents or widths which have been based on vein width and grade continuity. The domains have been grouped according to grade distribution with the view that many of the low-grade domains interpreted and estimated will not be economic for extraction - this has been reflected in the cut-off grade applied during the reporting of the Mineral Resource.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	No metallurgical factors or assumptions have been applied.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The deposit will access the existing Kundana infrastructure and no material variation to the existing practices have been assumed.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	A bulk density of 2.8 g/cm3 has been applied to all domains and waste zones within the model. This bulk density has not been independently verified.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	No records have been provided stating the methods used in deriving the bulk density value used.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	The bulk density value applied is within error for the mineralisation and host rocks and is in line with historical estimates.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The mineralisation at the Barker South Deposit has been classified as an Inferred Mineral Resource.
	Whether appropriate account has been taken of all relevant factors (ie. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The primary reason for the Inferred Mineral Resource classification is the inability to locate full analytical QAQC data for the drill hole samples used. Once this issue has been rectified, appropriate resource categories can be applied to the MRE based on the data spacing, quality of data and the relative confidence in the estimate of the geological and grade estimate.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The classifications applied to the Barkers South reflect the Competent Persons views of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	No audits or reviews have been undertaken as part of this MRE, apart from the standard internal peer review process.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The resource has been validated visually in section and level plan along with a statistical comparison of the block model grades against the de-clustered composite grades to ensure that the block model is a realistic and accurate representation of the input grades.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This is a global estimate of the tonnes and grade within the deposit, although the parameters used during the grade estimation have been specified to more closely the local scale variability evident within the input grades for the deposit.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production data has been reviewed for this deposit at the time of the Mineral Resource estimate.





A long section of relevant drill intercepts in the plane of the Barkers Main Vein shown with respect to Barkers development. Mineralisation is open down plunge and along strike. Drilling is currently underway looking at strike extension possibilities.

NORTHERN STAR RESOURCES LIMITED

Appendix 2 – List of drillhole details relevant to the Barkers June 2016 resource estimate

Hole ID	East (MGA)	North (MGA)	RL (MGA)	Dip	Azimuth (MGA)	Hole Depth	From	To	Width	Grade gpt Au	True Width	Zone
BDD086	330528	6600743	346	-58	34	452.9	410	411	1	0.04	0.7	BMV
BDD088	330544	6600607	346	-62	34	614.1	587.25	587.5	0.25	33.5	0.2	BMV
BDD089	330411	6600697	346	-61	29	653.7	551.36	551.88	0.52	0.63	0.4	BMV
BDD094	330603	6600665	344	-59	30	551.8	446.67	446.85	0.18	9	0.1	BMV
BDD095	330515	6600636	353	-58	30	543.5	501	503.7	2.7	13.48	2	BMV
BDD097	330486	6600761	354	-64	29	455.1	420.2	422	1.8	6.11	1.3	BMV
BDD100	330375	6600836	355	-62	30	492.9	448.83	448.97	0.14	600.06	0.1	BMV
BDD121	330543	6600786	345	-79	26	774.1	606	606.93	0.93	6.26	0.4	BMV
BDD121B	330543	6600786	345	-79	26	705	576.93	577.15	0.22	3.66	0.1	BMV
BDD282	330553	6601157	103	-43	210	228.1	187.94	188.1	0.16	65.1	0.1	BMV
BDD286	330553	6601157	103	-44	228	249.9	194.55	194.88	0.33	50.8	0.2	BMV
BDD307	330674	6601027	74	-50	219	289.9	259.66	260.24	0.58	1.3	0.2	BMV
BDD310	330675	6601026	75	-43	205	236.4	203.77	204.71	0.94	24.9	0.5	BMV
BDD311	330675	6601026	75	-49	204	280.7	247.87	248.38	0.51	23.58	0.2	BMV
BDD312	330676	6601026	75	-49	194	320.3	281.3	283.1	1.8	28.26	0.5	BMV
BDD313	330676	6601026	75	-41	192	254	222.93	226	3.07	19.71	1.2	BMV
BDD314A	330676	6601026	75	-47	182	341.5	312.2	312.5	0.3	45.9	0.1	BMV
BDD320	330553	6601159	100	-38	244	218.8	190	192	2	0.01	1	BMV
BDD323	330572	6601062	26	-46	190	221.1	192	196	4	13.59	1.6	BMV
BDD324	330568	6601066	26	-33	267	212.1	179	180.32	1.32	13.8	0.4	BMV
BDD325	330568	6601065	26	-41	260	209.7	179.15	180	0.85	31.78	0.3	BMV
BDD326	330568	6601065	26	-38	252	170.5	141.95	145	3.05	1.77	1.3	BMV
BDD327	330569	6601064	26	-46	246	202.8	165.72	165.95	0.23	1.65	0.1	BMV
BDD328	330569	6601064	26	-53	244	239.4	195.42	196	0.58	0	0.2	BMV
BDD329	330570	6601064	26	-48	229	200.4	160.15	160.37	0.22	0.29	0.1	BMV
BDD330	330570	6601064	26	-53	227	233.9	198.2	198.4	0.2	6.26	0.1	BMV
BDD331	330570	6601063	26	-48	207	200.6	173.32	174.58	1.26	0.5	0.5	BMV
BDD333	330570	6601065	26	-44	264	254.3	221.15	221.52	0.37	23.7	0.1	BMV
BDD334	330660	6600965	-22	-49	224	201.4	176.24	176.95	0.71	0.84	0.3	BMV
BDD335	330660	6600965	-22	-55	225	245.9	210	211.54	1.54	1.29	0.5	BMV
BDD336	330661	6600964	-22	-46	176	275.6	242	244	2	32.02	0.5	BMV
BDD337	330661	6600964	-22	-51	189	260.5	231.96	234.03	2.07	8.64	0.5	BMV
BDD339	330661	6600964	-22	-37	202	164.6	137.95	139.5	1.55	35.48	0.7	BMV
BDD341	330662	6600964	-22	-29	171	179.6	150.02	150.8	0.78	80.9	0.3	BMV
BDD343	330662	6600964	-22	-20	156	200.4	153.81	155.15	1.34	22.5	0.3	BMV
BDD349	330709	6600944	-193	14	241	162	153.1	153.44	0.34	16.89	0.3	BMV
BDD356	330712	6600940	-194	-3	250	205	176.29	176.39	0.1	1.66	0.1	BMV
BDD357	330712	6600940	-194	-18	249	225	189.07	190	0.93	2.02	0.7	BMV
BDD358	330714	6600938	-194	-17	184	221	186.4	187.14	0.74	25.85	0.5	BMV
BDD359	330714	6600938	-194	-29	185	255	221.7	222.01	0.31	4.67	0.2	BMV
BDD360	330713	6600938	-194	-19	196	203	168.5	170	1.5	21.63	1	BMV
BDD361	330713	6600938	-194	-31	196	239.5	207.52	207.68	0.16	4.67	0.1	BMV
BDD362	330713	6600938	-194	-32	209	236	205.08	205.22	0.14	21.6	0.1	BMV
BDD363	330713	6600938	-194	-19	207	194.5	166	169.05	3.05	5.93	2.2	BMV
BDD364	330712	6600939	-194	-31	225	233	205	206	1	0	0.5	BMV
BDD365	330712	6600939	-194	-19	225	194.3	175	178	3	6.37	2.2	BMV
BDD366	330712	6600940	-194	-31	239	239.8	212.15	213	0.85	0.2	0.5	BMV
BDD367	330712	6600940	-194	-29	245	255	219	221.5	2.5	10.8	1.4	BMV
BDD368	330711	6600940	-194	-18	239	197.1	177.6	177.7	0.1	21.2	0.1	BMV
BDD369	330578	6601036	-38	-57	226	290.8	253	255.75	2.75	2.59	0.6	BMV
BDD370	330578	6601036	-38	-52	229	242.7	214.6	214.75	0.15	5.7	0	BMV
BDD371	330578	6601035	-38	-56	211	290	249.61	249.95	0.34	7.77	0.1	BMV
BDD372	330578	6601035	-38	-50	211	248.7	199.5	200.5	1	2.44	0.3	BMV
BDD373	330578	6601035	-38	-55	241	291	254	254.65	0.65	10.68	0.1	BMV
BDD374	330578	6601035	-38	-49	244	239.7	205.1	205.3	0.2	1.97	0.1	BMV
BDD375	330578	6601035	-38	-46	257	260	217	218	1	2.63	0.3	BMV
BDD377	330561	6600974	-72	18	268	55	45.28	45.38	0.1	0.19	0.1	BMV
BDD378	330561	6600974	-72	12	288	83	72	73	1	8.29	0.5	BMV
BDD379	330561	6600974	-72	-9	255	59	45	46.06	1.06	1.56	0.8	BMV

NORTHERN STAR RESOURCES LIMITED

Hole ID	East (MGA)	North (MGA)	RL (MGA)	Dip	Azimuth (MGA)	Hole Depth	From	To	Width	Grade gpt Au	True Width	Zone
BDD380	330561	6600974	-72	-7	277	90.5	68.21	71	2.79	2.54	1.5	BMV
BDD381	330789	6600839	-189	27	209	116	90.6	92	1.4	13.32	1.3	BMV
BDD382	330789	6600839	-191	-6	209	128	104.97	107	2.03	19.37	1.7	BMV
BDD383	330789	6600839	-191	-25	210	168	136.54	137.43	0.89	45.41	0.6	BMV
BDD384	330789	6600839	-191	-38	210	210	179.15	182.67	3.52	6.92	1.7	BMV
BDD385	330790	6600839	-191	-37	194	211.1	188.8	189.43	0.63	72.84	0.3	BMV
BDD386	330790	6600839	-189	26	194	97.2	87.6	88.12	0.52	15.4	0.5	BMV
BDD387	330788	6600840	-189	25	221	104	90.5	91.55	1.05	5.53	1	BMV
BDD388	330787	6600840	-189	23	234	115	101.55	102.9	1.35	7.03	1.3	BMV
BDD389	330787	6600841	-189	21	245	124	116.43	119	2.57	51.06	2.4	BMV
BDD391	330790	6600839	-191	-24	195	188.8	141.06	143	1.94	2.09	1.1	BMV
BDD392	330790	6600839	-191	-4	189	142.9	108.94	109.64	0.7	11.35	0.5	BMV
BDD393	330790	6600839	-189	23	185	134.4	91.83	92.02	0.19	5.12	0.1	BMV
BDD394	330790	6600839	-191	-5	174	176	123.63	125.4	1.77	9.46	1	BMV
BDD395	330789	6600839	-189	18	166	155.2	109.37	109.85	0.48	6.08	0.3	BMV
BDD396	330791	6600839	-191	-4	161	188	153.11	153.91	0.8	9.82	0.3	BMV
BDD397	330791	6600839	-189	14	153	182.1	151.05	152.26	1.21	18.24	0.5	BMV
BDD398	330789	6600839	-191	-26	199	170.1	142.27	143.87	1.6	51.89	0.9	BMV
BDD399	330788	6600840	-191	-6	219	135	107.92	108.51	0.59	9.53	0.5	BMV
BDD400	330789	6600839	-191	-6	196	135	107	107.77	0.77	32.72	0.6	BMV
BDD401	330790	6600839	-191	-6	178	140.1	117.74	118	0.26	14.3	0.2	BMV
BDD402	330790	6600839	-191	-35	181	245	212.93	215	2.07	15.36	0.7	BMV
BDD403	330790	6600839	-191	-24	184	179.4	155	158	3	18.44	1.5	BMV
BDD404	330790	6600839	-191	-36	185	220	190.75	192	1.25	37.04	0.6	BMV
BDD405	330788	6600840	-191	-38	216	215.2	168.1	169.31	1.21	33.76	0.7	BMV
BDD406	330788	6600840	-191	-27	218	170	136	139	3	4.73	2	BMV
BDD407	330787	6600840	-191	-38	232	215	185	190	5	9.71	2.5	BMV
BDD408	330787	6600840	-191	-27	235	173.3	148.72	152.4	3.68	6.53	2.3	BMV
BDD409	330788	6600840	-191	-37	199	211.4	176	177	1	13.04	0.5	BMV
BDD410	330788	6600844	-191	-22	247	188.1	164.69	164.9	0.21	33.3	0.1	BMV
BDD416	330789	6600839	-191	-22	177	193.9	163.75	165.22	1.47	12.28	0.7	BMV
BDD417	330789	6600839	-191	-31	171	259.2	231	233	2	39.21	0.6	BMV
BDD418	330789	6600839	-191	-20	166	227.3	183.08	186.3	3.22	1.19	1.2	BMV
BDD419	330789	6600839	-191	-29	168	280.2	251.95	252.75	0.8	1.66	0.2	BMV
BDD432	330878	6600824	-180	-44	200	434.4	305.53	306.5	0.97	10.41	0.3	BMV
BDD433	330878	6600824	-180	-38	183	368.2	300.17	301.22	1.05	79.64	0.4	BMV
BDD435	330877	6600825	-180	-43	224	341.4	281.55	281.85	0.3	1.34	0.1	BMV
BDD463	330879	6600824	-179	-16	184	241.6	192	193	1	3.33	0.6	BMV
BDD464	330879	6600824	-179	-26	180	302.9	234	237.46	3.46	11.57	1.6	BMV
BDD466	330879	6600824	-179	-15	170	320.8	223	225	2	22.18	0.9	BMV
BG915000007	330715	6600811	-82	1	24	14.6	14	14.6	0.6	0.92	0.5	BMV
BRD002	330494	6600858	344	-73	31	606	397.5	397.83	0.33	29.03	0.2	BMV
BRD004	330712	6600861	322	-89	285	414.7	360	361	1	0	0.2	BMV
BRD019	330646	6600627	344	-68	26	623.6	489	495	6	5.21	3.8	BMV
BRD029	330222	6600731	345	-48	77	758.7	645	646	1	9.36	0.8	BMV
BRD030	330220	6600738	345	-53	60	728.1	602	603.2	1.2	4.1	1.1	BMV
BRD034	330215	6600746	346	-57	50	708.7	623.25	623.48	0.23	1.41	0.2	BMV
BRD035	330213	6600747	346	-55	48	776	597.7	597.85	0.15	5.15	0.1	BMV
BRD038	330629	6600676	344	-71	24	499	490.65	491.3	0.65	10.77	0.4	BMV
BRD040	330219	6600735	346	-49	62	711.3	583.52	583.65	0.13	200	0.1	BMV

NORTHERN STAR RESOURCES LIMITED

JORC CODE, 2012 EDITION – TABLE 1 REPORT: HORNET – AS AT 3O JUNE 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Diamond drilling (DD) and reverse circulation (RC) drilling was used to obtain 1m samples from which 2kg (Delta Gold holes) or 3kg (Barrick holes) was pulverised to produce a 50g charge for fire assay. For the Delta Gold holes, less prospective zones or wet zones were sampled with five metre composites that were assayed with aqua-regia digest and AAS finish on a 50g charge.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Variable as per vintage of the drilling. All recent sampling and assaying was to Barrick internal standards, based on the requirements of the Canadian NI 43-101 reporting standard. The quality control protocols used are well documented, and quality assessment information relating to these holes was included in the site-wide monthly QAQC documentation. Additionally, the quality assessment data (company and laboratory) is retained in the current Northern Star database.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drill core was half-core sampled on a nominal 1m sample length and was pulverised to produce a 50g charge for fire assay. For the Delta gold holes, less prospective zones sampled by V-cut in 4m intervals and then treated as above. Any significant anomalous composite intervals were re-sampled by taking all core from the remaining hemisphere of the V-cut as 1m samples and then treated as above.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	The majority of drill holes are 130-145mm RC drill holes supplemented with a small proportion NQ diamond drillholes. The DD holes are NQ or NQ2 diameter in fresh rock however some HQ3 triple tube drilling was used through the regolith.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	DD recoveries were accounted for by recording core loss intervals measured in linear downhole metres to the nearest five centimetres. All diamond core was dried before sample preparation making the original moisture of the sample irrelevant to sample and assay integrity.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For Barrick RC drill holes: o RC drill recoveries were logged by the geologist or field assistant whilst drilling. These recoveries were based on a visual estimation of the proportion of sample returned relative to a full one metre sample. Moisture was logged as wet, moist or dry where wet means all or part of the sample was a slurry, moist means the material was wet enough to clump together and therefore not split effectively through a riffle or cone splitter and dry was any sample that was sufficiently free of moisture to properly run through a riffle or cone splitter. For Delta Gold RC drillholes: o Drilling reports show that moisture and recovery for RC drillholes was noted through the drilling campaign and sampling techniques modified accordingly, however this information is not contained within the Northern Star drill database so no analysis of this data is possible.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Where recovery data is available, that data shows that 96% of samples have sufficient recovery to be considered a representative sample. Most of those poor recoveries are from the first two metres of the hole where the resultant gold grades will have little or no impact on the estimated grades.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	All DD core and RC chips have been logged to the detailed exploration logging scheme of Delta Gold/Barrick/Northern Star (i.e. a single logging scheme that has evolved with only minor changes over time). Selected diamond core has been geotechnically logged as required.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is both qualitative and quantitative. All core is photographed
	The total length and percentage of the relevant intersections logged.	100% of DD core and RC chips are logged
	If core, whether cut or sawn and whether quarter, half or all core taken.	All DD core was sawn longitudinally and one half submitted to the laboratory.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	All RC drill samples were either cone or riffle split on the drill rig and that sample was then submitted to the laboratory

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Drill core samples submitted to the laboratory are crushed to a nominal 6mm in a jaw crusher (no grind checks used for this step) and then pulverised to 90% passing 75µm in an LM5 puck mill. Samples too large (>3kg) for the LM5 mill are first crushed in a Boyd crusher to 90% passing 3mm and the sub-sampled to less than 3kg with a rotary splitter. RC samples are pulverised to 90% passing 75µm in an LM5 puck mill. Samples too large (>3kg) for the LM5 mill are first jaw-crushed 90% passing 3mm and then sub-sampled to less than 3kg with a rotary splitter.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are conducted on a 1 in 25 samples basis to confirm effectiveness. A second pulp 250-300g was taken from the LM5 mill on a 1 in 50 samples basis and processed identically to other samples for the remainder of the assay workflow.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates were taken on a one-in-twenty samples basis for RC drilling with a second split of the 1m sample to provide a second nominally 3kg sample to be processed identically to all original samples. Diamond core did not have duplicate samples taken.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are deemed appropriate
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	All one metre samples were fire assayed with a 50-gram charge weight with an AAS (atomic absorption spectroscopy) finish. This method is considered to report the total gold content of the sample. Delta Gold composite samples were assayed with aqua-regia digest and AAS finish on a 50g charge.
	For geophysical tools, spectrometers, handheld XRF instruments etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical results used in this estimation
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The laboratories used were required to routinely repeat a fire assay from the pulp for 1 in 20 samples. Higher grade samples (above a nominal 1 gpt cut-off) were re-assayed from the original pulp until the result was deemed repeatable, by the laboratory. For Barrick drillholes, commercially produced, certified standards were submitted to the laboratory on a 1 in 20 basis. Ground Bunbury Basalt (similar in appearance to an RC sample from mafic rocks), of a gold concentration known to be below normal ppm detection limits (but not certified), was submitted in the sample stream on a 1 in 50 basis to be processed identically to all original samples. Delta Gold reports document the use of company supplied standard material and that the results were acceptable, being within 10% of the accepted value, but the exact details of the protocol(s) are not described and the QA data is not available
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	The significant intercepts of the Woodline area are considered to be verified on the basis that the project has been drilled with different methods by different teams from two different parent companies over twenty years and has returned results that are consistent with each other and demonstrate continuity of grade and thickness of mineralisation.
	The use of twinned holes.	No twinned holes drilled
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	All recent assay data (definitely all Barrick assay data and probably much of the Delta Gold data) has been directly imported into the digital database directly from laboratory reports eliminating any potential for typographical errors
	Discuss any adjustment to assay data.	No adjustments have been made to assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Newer drillhole collars were picked up by Differential GPS. Earlier drill holes were mostly picked up by theodolite on a local exploration grid and later referenced back to the MGA94 map grid. Both methods are accurate to within one metre or better
	Specification of the grid system used.	MGA94 Zone 51
	Quality and adequacy of topographic control.	A digital terrain model was commissioned from Cardno-Spectrum Surveys for the purpose of this resource estimate.
	Data spacing for reporting of Exploration Results.	Exploration results not being reported.

Criteria	JORC Code explanation	Commentary
Data spacing and distribution	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The drilling attained a 20m x 20m spacing on the sub-horizontal supergene mineralised surfaces and the sub-vertical fresh-rock porphyry related mineralised surfaces. This drill spacing is considered appropriate for an Indicated Resource on the fresh rock mineralisation and lowermost supergene horizon. Poor lateral continuity in the upper supergene horizons means this drill spacing is inadequate for those surfaces. Two ten metre spaced drill lines were drilled subsequent to the most recent resource estimate in order to define the continuity of these upper surfaces.
	Whether sample compositing has been applied.	No compositing has been applied
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The vast majority of the drilling is oriented between 55° and 60° dip on an azimuth roughly perpendicular to the strike of the controlling porphyry dyke.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	This drill orientation adequately tests both the sub-horizontal supergene surfaces and the sub-vertical porphyry-related surfaces without introducing a sampling bias
Sample security	The measures taken to ensure sample security.	All holes drilled by Barrick were delivered to the laboratories directly by Barrick staff under a Barrick chain of custody process.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	This resource estimate and supporting data was reviewed and accepted by Barrick auditors external to the Kanowna operation

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Woodline deposit is on Mining Lease M27/37 which is 100% owned by Northern Star (Kanowna) Pty Limited, a wholly owned subsidiary of Northern Star Resources Limited and is in good standing. The Woodline deposit lies on Vacant Ground Crown Land.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	A gazetted, but disused, road passing through the prospect is in the process of being either closed or degazetted so that mining may proceed.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	All resource quality drilling (RC and DD) on the Woodline prospect has been undertaken by the one company operating the Kanowna Belle Gold Mine, albeit with a succession of different parent companies having ownership of that operation (Delta Gold, Aurion Gold, Placer Dome, Barrick Gold and now Northern Star Resources).
Geology	Deposit type, geological setting and style of mineralisation.	The Woodline deposit encompasses two distinct mineralisation styles. The primary mineralisation is mineralisation is associated with a felsic dyke that has intruded a shear zone passing through a basalt sequence. The intrusive has elevated gold grades of the order of 0.2gpt throughout, with high grade zones on the sheared margins associated with pervasive sericite-albite alteration and fine disseminated pyrite. Syn or post-intrusion shearing has also produced a narrow but laterally continuous quartz-ankerite-chlorite-arsenopyrite-pyrite vein with high gold grades that roughly follows the sheared intrusive margin. Supergene processes have laterally dispersed gold away from the primary source at the base of weathering to create the lowermost sub-horizontal mineralised surface. Other supergene surfaces occur at the base of channels of transported sands. Alluvial gold in the base of the channels, which are nested on top of each other, is believed to have nucleated the precipitation of supergene gold mobilised from the primary source by weathering processes
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole	No exploration results being released.

Criteria	JORC Code explanation	Commentary
	o down hole length and interception depth o hole length.	
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	The exclusion of this data will not impact on the understanding of this report.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	No exploration results being released.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No exploration results being released.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No exploration results being released.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	No exploration results being released.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	No exploration results being released.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	No exploration results being released.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	A plan view showing drill collar locations and interpreted geology is included with this report.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results not reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	A 2012 SAM (sub-audio magnetics) geophysical survey over the Woodline Prospect was targeting the larger-scale exploration potential of the area and as such is not relevant to the local scale of this resource estimate.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	A review of the resource model will be undertaken during the coming year with the intention of re-evaluating the project for open pit potential. No further exploration activity is planned in the short term.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	The deposit has not been closed at depth over the entire strike length.

Section 3 Estimation and Reporting of Mineral Resources

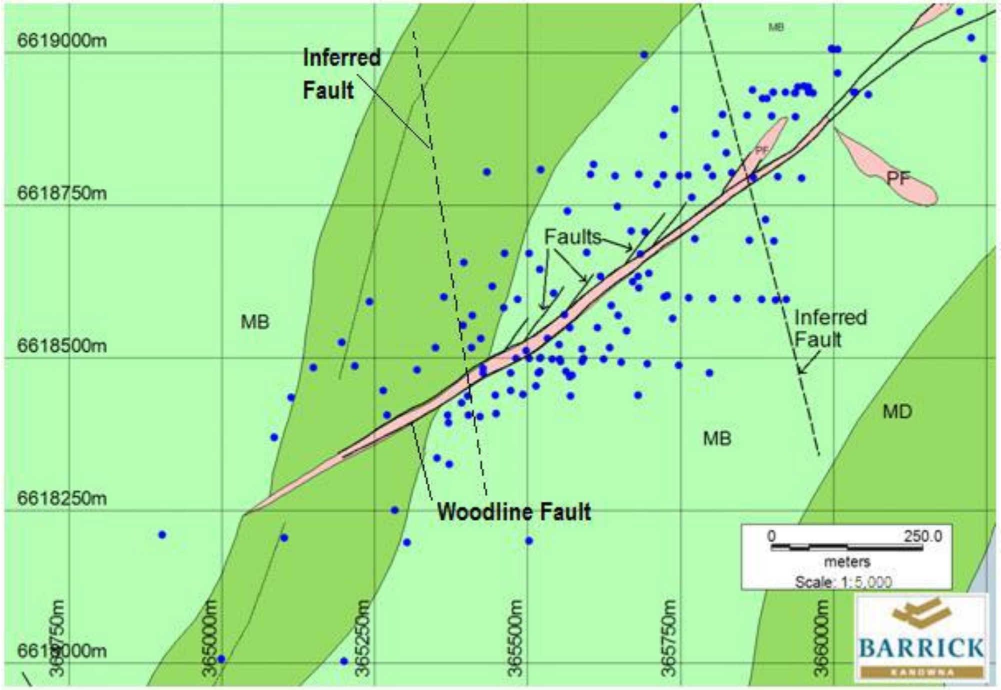
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Wherever possible data has been imported into the digital database by directly importing it from digital files.

Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	Barrick drill holes were validated by compiling a hardcopy of all relevant data on a hole-by-hole basis with a coversheet for each. As each piece of information was validated against the information in the data base, the relevant section of the coversheet was signed off by the validating person. The position and orientation of all drill holes was checked in three-dimensions using Datamine software, with the consistency of the fresh-rock geology proving useful for spatially validating the dataset. The internal consistency of grade and thickness of intercepts does not indicate any material problems with the sample and assay data of older holes for which the above checks cannot be applied.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Data compilation, geological interpretation and the resource estimate were all done by site-based geologists
	If no site visits have been undertaken indicate why this is the case.	Site visits undertaken at the time of estimation
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	There is a high level of confidence in the interpretation of the fresh-rock and lowermost supergene mineralisation surfaces. There is limited direct support for the interpretation of the upper supergene surfaces from drillhole logging data and the lateral continuity of these surfaces is poor. As such, the confidence in the spatial interpretation of these surfaces is low, but the general geological context is supported by a detailed study of the genesis of mineralisation in a similar nearby prospect (Six Mile Palaeochannel) and from mining of the Moonlight deposit, a similar nearby prospect.
	Nature of the data used and of any assumptions made.	No assumptions made.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Initial geological interpretation was completed by the exploration and project geologist following the May-April 2011 drilling program. This was used to guide the construction of the mineralisation domains for the model. The primary mineralisation at Woodline is hosted within a series of sub-vertical veins/shears of which the largest has been named the Yourso Vein. The Yourso Vein is comprised of quartz-ankerite-chlorite-arsenopyrite-pyrite veins and breccia with a strike of approximately 900m and to a vertical depth of 260m below surface. The vein is typically 0.5 – 1m true width. In conjunction with the surrounding sheared and altered wall rock, the true width of mineralisation is generally between 2 and 5m, typically around 3m.
	The factors affecting continuity both of grade and geology.	Structural interpretations of DD core indicate multiple cross cutting faults. The main NE striking shear (known as the Woodline Fault) splays around the two geological contacts of the porphyry with the basalt units. This shear is the main host of mineralisation in the Woodline area. In addition to the Woodline Fault, at least two others are 20° NW strike faults. The Woodline Fault hosts the main Woodline mineralised zones (Domain 31, 32, 41, 42) while the two inferred NW cross cutting faults offset mineralisation and affect weathering depths. As a result, the mineralised porphyry zone has been offset by 100m to the north resulting in separating Domain 3 and 4 into two sections with a displacement to accommodate for the eastern cross cutting fault and further constrain the interpretations.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Porphyry related (fresh-rock) mineralisation is modelled over 900m of strike extent and with a dip extent of between 50 - 250m depending on the extent of drilling. The mineralised zone tends to be around 15m wide with the individual mineralised surfaces within that zone between 1 – 2 metres wide. Supergene mineralised surfaces tend to around 500m long in extent and 3 - 5 metres deep in the centre but that thickness tapers abruptly over the 50m that the surface is modelled away from that core (i.e. generally 100m lateral extent).
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	The resource model was created in accordance with standard Barrick resource modelling procedures. Drill data was composited to a nominal length of 1m for all domains except Domain 32 where a 3m composite length was selected. It was noted that the number of composites was higher than the number of samples in three of the six domains. Inverse distance squared (ID2) was adopted as the grade estimation method.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	There is some evidence of small scale historic mining in the area, however, no productions records are known to exist.
	The assumptions made regarding recovery of by-products.	No assumptions regarding by-products.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	Deleterious elements not estimated.

Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Model cell sizes of 2m (E-W) x 5m (N-S) x 2m (RL) were adopted. Drilling is nominally on 50m sections with some areas infilled to around 25m spacing. Search ellipses were orientated to match the strike and dip of each domain.
	Any assumptions behind modelling of selective mining units.	Model cell sizes of 2m x 5m x 2m were adopted representing the SMU appropriate for the anticipated mining fleet.
	Any assumptions about correlation between variables.	Estimation undertaken for gold only.
	Description of how the geological interpretation was used to control the resource estimates.	Four primary domains were created in the model, these consisted of two supergene domains and two primary mineralisation domains on the hanging wall contact and on the footwall contact of the porphyry unit. The two primary domains were divided into two sub-domains around a major cross cutting fault. The domains were coded as follows: o Domain 1 upper supergene o Domain 2 lower supergene o Domain 31 Porphyry hanging wall west o Domain 32 Porphyry hanging wall east o Domain 41 Porphyry footwall west o Domain 42 Porphyry footwall east
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were applied to the sample data before compositing targeting the 99%ile of the sample distribution. Top cutting analysis was undertaken on the primary domains.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation steps undertaken included: o Visual comparison of model vs composite grades o Comparison of the distribution of block grades vs composite grades o Comparison of grades estimated by ID2 vs grades estimated by ID3 and grades estimated by nearest neighbor
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Dry tonnages were used throughout the modelling process.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Historic mining and processing costs were used to calculate cut-off grades.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	A base of 200m RL (~150m below surface) was assumed for open pit mining. All material above this level was assumed to be amenable to open pit mining. All ore below this level was assumed to be amenable to underground mining.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Historic metallurgical performance was accepted for the project
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	It was assumed that adequate storage would be available for waste and tailings materials

Criteria	JORC Code explanation	Commentary
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	The bulk density values were derived from a study undertaken in 1995, however, the methods used to obtain the measurements are unclear.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density values are supported by test work and are consistent with values generally encountered in the area.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Bulk densities were assigned to the model based on the degree of weathering logged
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	The resource was classified as Inferred
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	The estimation exercise was undertaken to a standard consistent with standard Barrick procedures and practices in effect at the time the exercise was undertaken.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The modelling was undertaken to a standard sufficient for declaration as an inferred resource.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The model was reviewed by Barrick personnel.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	The modelling exercise was undertaken to assess the prospectively of the project focusing on potential material mineable by open pit. A secondary aim of the exercise was to allow the declaration of an inferred open pit resource for the project. Further work is required to improve confidence in the resource model to a level suitable for inclusion in reserves.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	Global estimate with local variation.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No production records are known to exist.


6619000m
6618750m
6618500m
6618250m
Inferred
Fault
Faults
Inferred
Fault
Woodline Fault
MB
MB
MD
PF
365000m
365250m
365500m
365750m
366000m
0
250.0
meters
Scale: 1:5,000
BARRICK

NORTHERN STAR RESOURCES LIMITED

JORC Code 2012 Edition – Table 1 Report: Jundee (Underground) – As at June 30 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes or handheld XRF instruments etc.). These examples should not be taken as limiting the broad meaning of sampling.	The deposits are sampled by diamond drilling (DD) and Reverse Circulation (RC) drilling completed by previous operators. In DD, generally NQ2 or BQ. core sample intervals are defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. For RC, rig-mounted static cone splitters are used with sample falling though a riffle splitter or inverted cone splitter, splitting the sample in 87.5%/12.5% ratio with the 12.5% off-split retained. Material is sampled using 'pipe' or 'spear' sampling tool. Generally sampled as 4m composites with 1m samples (12% split) sent for further analysis if any 4m composite values returned a gold value > 0.1ppm or intervals containing alteration/mineralisation failed to return a significant composite assay result. RC and DD sampling by previous operators are to industry standards at that time often using 1m re-splits after initial 4m composites. The majority (>90%) of samples used for Reserve and Resource estimates are DD.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC and surface DD completed by previous operators to industry standards at that time.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. Diamond core samples are fire assayed (30g charge). Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC – Reverse circulation drilling was carried out using a face sampling hammer with a 130mm diameter hammer. Surface diamond drilling carried out by using both HQ2, HQ3, PQ2 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled interval.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC and diamond drilling by previous operators are to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Core and chip samples have been logged by qualified geologist to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion hole logging was carried out on a metre basis at the time of drilling. Surface core and RC logging completed by previous operators was to industry standards at the time.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is both qualitative and quantitative with all core photographed wet (some older core is pre-digital, photos not all reviewed). Visual estimates of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of the drill core is logged. 100% of RC drilling is logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	NQ2 diamond core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries with the left half archived. BQ diamond core is whole core sampled with sample intervals are defined by a qualified geologist to honour geological boundaries

Criteria	JORC Code explanation	Commentary
		All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on geological intervals in recognized ore zones. Minimum sample length is 0.3m while the maximum is 1.2m. Total weight of each sample generally does not exceed 5kg. Following drying at 100°C to constant mass, all samples are totally pulverised in LM5's to nominally 90% passing a 75µm screen. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory and audit of plant samplers confirming that the sampling protocol currently in use are appropriate to the mineralisation encountered and provide representative results. For RC samples, all drying at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominal P_{85} 75µm screen. Samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. For RC samples, no formal heterogeneity study has been carried out. Informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For pre-Northern Star Resources (NSR) samples, best practice for the time period is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC – Cyclone mounted riffle splitter or inverted cone splitter, pre NSR, RC sub-sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Following drying at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Confirmed that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Repeat analysis of pulp samples (for all sample types – diamond, RC, rock) occurs at an incidence of 1 in 20 samples.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates (other half of cut core), have not been routinely assayed. RC drilling sampling methodology by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all drill core samples, gold concentration is determined by fire assay using the lead collection technique with a 30 gram sample charge weight with an AAS finish is used. Various multi-element suites are analysed using a four acid digest with an AT/OES finish. RC drilling sample assay methodology by previous operators to industry standard at the time and not reviewed for this resource.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	The QAQC protocols used include the following for all drill samples: Field QAQC protocols used include the following for all drill samples - Commercially prepared certified reference materials (CRM) are inserted at an incidence of 1 in 30 samples. The CRM used is not identifiable to the laboratory, QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. Laboratory QAQC protocols used include the following for all drill samples - Repeat analysis of pulp samples occur at an incidence of 1 in 20 samples, screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples, the laboratories' own standards are loaded into the database, the laboratory reports its own QAQC data on a monthly basis.

Criteria	JORC Code explanation	Commentary
		In addition, about 3% of samples are sent to a check laboratory. Samples for check assays are selected automatically from holes, based on the following criteria: grade above 1gpt or logged as a mineralized zone or is followed by feldspar flush or blank. Failed standards are followed up by re-assaying a second 30g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and third party checks) and the precision component (duplicates and repeats) of the QAQC protocols demonstrate acceptable levels of accuracy and precision. QAQC protocols for surface RC and diamond drilling by some previous operators is assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.
	The use of twinned holes.	There are no purposely drilled twinned holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data imported into SQL database using semi-automated or automated data entry. Hard copies of core assays and surveys are stored at site. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to SQL database.
	Discuss any adjustment to assay data.	The first gold assay is utilised for any resource estimation. Exceptions occur where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay. Some minor adjustments have been made to overlapping data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to the state wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the world wide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortholinear rectified photogrammetry based on the Australian Map Grid 1984 (AMG84_51). Collar coordinates are recorded in AMG84 or Local Jundee Grid (JUNL2) dependant on the location and orientation of ore-bodies. Cross checks were made on the survey control points and data in June 2005. Collar information is stored in both local coordinates and AMG84 coordinate in the drilling database. In-mine drill-hole collars are normally accurate to 10 cm. Multi shot cameras and gyro units were used for down-hole survey. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and survey instruments to industry standards at the time.
	Specification of the grid system used.	Collar coordinates are recorded in AMG84 Zone 51 (AMG GN) and local Jundee grid (JUNL2) dependant on the location and orientation of ore-bodies. The difference between Jundee mine grid (GN) and magnetic north (MN) as at 31 December 2011 is 39° 35' 00" and the difference between magnetic north (MN) and true north (TN) is 1° 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1° 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2010, 1m contour data and site surveyed pit pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Variable to a maximum of 80m x 80m spacing.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Ore Reserves are generally based on 20m x 20m drilling up to a maximum of 40m x 40m. Mineral Resources are generally based on 40m x 40m drilling up to a maximum of 80m x 80m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource classifications to be applied.
	Whether sample compositing has been applied.	Sample compositing is not applied until the estimation stage.

Criteria	JORC Code explanation	Commentary
		RC samples initially taken as 4m composites to be replaced by 1 m samples if any 4m composite values returned a gold value > 0.1ppm or intervals containing alteration/mineralisation failed to return a significant 4m composite assay result. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to the main mineralisation trends. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drilling orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises, better angled holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented and all assays are returned via email. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. Pre NSR operators sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	In 2006, Maxwell conducted an audit of all Jundee data. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Both audits found the sampling techniques and data to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally. Pre NSR data audits found to be minimal in regards to QAQC though in line with industry standards of the time

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Jundee Project tenements comprise 62 Mining Leases and 1 General Purpose Lease covering a total area of approximately 57,422.2 ha. All are registered in the name of Northern Star Resources Limited. The Project also includes 23 Miscellaneous Licences, 3 Groundwater Licenses, a Pipeline License and the Jundee Pastoral Lease covering cover the bore fields, roads, airstrip and gas pipeline. There are numerous access agreements in place including access rights over part of Mining Lease 53/193 which lies contiguous to and beneath the General Purpose Lease on which the Jundee processing plant is located. The majority of the Jundee leases are granted Mining Leases prior to 1994 (pre Mabo) and as such Native Title negotiations are not required. During 2004, two agreements where struck between Ngaanyatjarra Council (now Central Desert Native Title Services (CDNTS)) and NYO, these agreements being the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All leases and licences to operate are granted and in the order for between 3 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Jundee/Nimary Deposits were discovered in the late 1980's/early 1990's after LAG and soil sampling by Mark Creasy (Jundee) and Hunter Resources (Nimary) identified large surface gold anomalies. The deposits were drilled out over the following years by Eagle Mining and Great Central Mines (which formed a joint venture with Creasy and later purchased his share). Open pit operations commenced in mid-1995 with the first gold poured in December 1995. Great Central Mines assumed full control of the field with its successful takeover of Eagle Mining in mid-1997. Great Central Mines was later taken over by Normandy in mid-2000, which in turn was taken over by Newmont in early-2002. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Jundee is an Archean lode-gold mineralized deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is controlled by a brittle fracture-system, is commonly fracture-centred, and is predominantly hosted in dolerite and basalt. Mineralisation can be disseminated or vein style host.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically summarise all drill information used. (See diagram).
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results not being released at this time.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results not being released at this time.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results not being released at this time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results not being released at this time.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Plan view and long section view of Jundee showing drill collars is attached.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results not being released at this time.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Exploration results not being released at this time.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Not applicable.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Exploration results not being released at this time.

Section 3 Estimation and Reporting of Mineral Resources

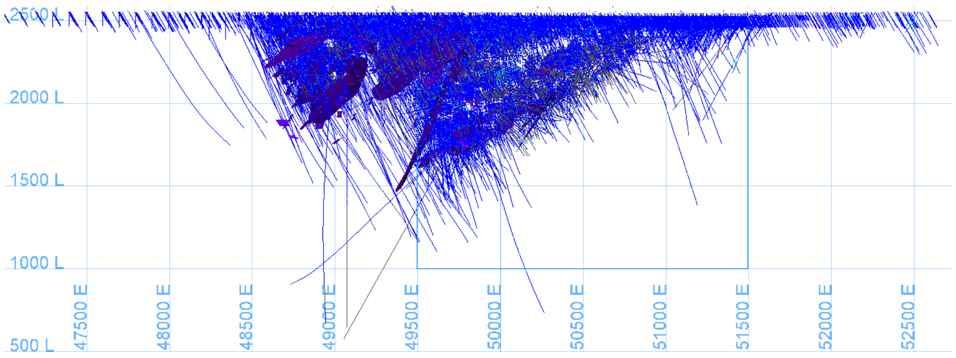
(Criteria listed in Section 1, and where relevant in Section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is digitally entered into a tablet then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre-NSR data is verified and considered correct.

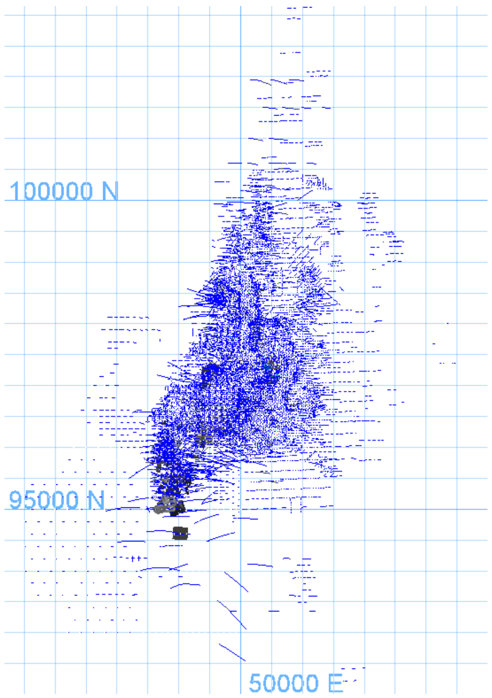
Criteria	JORC Code explanation	Commentary
	Data validation procedures used.	Pre-NSR data has been partially validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this resource report has worked on site for extensive periods between 2005 and 2016.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit is carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the orebody on a local scale. The confidence is supported by all the information and 18 years of open pit and underground operations.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging, pit mapping, and underground mapping used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the lodes with the greatest continuity are generally sub-parallel to the dolerite and basalt packages in which they are hosted. Splays or link lodes coming off of this main trend tend to have a shorter continuity.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Mineralized zones are narrow with true width ranging from 0.3 to 1m, but can be up to 5m. They are extensive along strike and down dip, up to 1000m and 500m, respectively, but are often highly discontinuous, and generally have a tabular geometry. Depth = surface to ~1730mRl (~780m below surface)
Estimation and modelling techniques.	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Domains are set by grouping lodes dictated by their structural setting, geological mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variographic analysis. Seam compositing (from hanging wall to foot wall) of drill hole samples is almost exclusively used. A very small proportion of UG lodes which exhibit a wider disseminated style of mineralisation, use a nominal 1 metre down hole composite. Detailed data analysis is carried out on each deposit using Snowden Supervisor software. The majority of the Mineral Resource is estimated using ordinary kriging (OK) and multiple indicator kriging (MIK) methodologies. A minor proportion of the Mineral Resource is estimated using inverse distance squared (ID2) methodology. The estimation type used is dictated by the size of the domain. Vulcan software is used for data compilation, domain wire framing, calculating and coding composite values, estimating and reporting. Maximum distance of extrapolation from data points is statistically determined and varies by domain. Block model volumes were compared to wireframe volumes to validate sub-blocking. Where OK or ID2 estimates were used, treatment of extreme high grades is dealt with by using a cap grade strategy.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Reconciled historical production from underground operations is comparable with new estimate
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	All underground models use a seam modelling methodology where the parent block size is 2.5m in strike, 1m in RL, and a variable width constrained by the width of the vein in the across strike direction. Sub-block sizes are 2.5m in strike, 1m in RL, and 0.2m across strike direction The use of seam models is more amenable for narrow vein mineralisation and gives greater flexibility in manipulating models for mining dilution. Ore Reserves are generally based on 20m x 20m drilling up to a maximum of 40m x 40m. Mineral Resources are generally based on 40m x 40m drilling up to a maximum of 80m x 80m.

Criteria	JORC Code explanation	Commentary
	Any assumptions behind modelling of selective mining units.	A 2.5m minimum mining width for underground mining is assumed.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top Cuts were determined by a range of statistical techniques including analysis of Histogram, Log-probability and Mean- CV plots. Contained metal plots by an assessment of contribution of the highest values on the quantity of metal in an estimate. Coefficient of Variation plots by analysis of impact top cuts have on the CV. A range of top cuts are then selected for each domain utilising the above strategies and an appropriate top cut chosen subsequent to further examination in order to assess sensitivity of selected cap grades and associated risk. Metal estimated in the resource models are finally reconciled with production models of like areas to determine the appropriateness of the high grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and ID2, treatment of the high grade assays occurs at the estimation stage. In MIK estimation this occurs in the form of the grade assigned to the highest indicator bin. Top cuts vary by domain and range from 20gpt – 2,000gpt
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation style validations summarised as: - Visual validation of the lode and lithology coding of both the composite data and the block model. - Comparison of lode wireframe volumes to block model volumes. - Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. - A variety of top-cuts are estimated and compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. - Comparison of nearest neighbour, ID2 and OK estimates to the final estimate (generally OK or MIK). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. - Comparison with previous Mineral Resource estimates compares global, level and lode tonnages and grades at various elemental cut-offs and, given the changes in support data, are considered to be consistent. - Comparison of Mineral Resource estimate are compared with local underground grade control models produced using, in addition to the DD used in the Mineral Resource estimate, face chip and drive mapping data. These comparisons are done on a level basis at various cut-offs. - Trend analysis plots for each domain are produced by Northing / Easting / RL. The Mineral Resource estimate generally shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. When the numbers of samples reduce the accuracy of the estimation suffers and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are taken into account when assigning a resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Preliminary design analysis to assess reasonable prospects for economic extraction for declaration of Mineral Resources uses actual costs from the mining operations. These costs are based on a twelve-month average of actual site costs.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	Preliminary design analysis to assess reasonable prospects for economic extraction for declaration of Mineral Resources uses actual costs from the mining operations and minimum mining widths of 2.5 m. These costs are a twelve-month average of actual site costs.

Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Assumes that material will be trucked and processed in the Jundee Mill. Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. No metallurgical assumptions have been built or applied to the resource model.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Project currently possesses all necessary government permits, licenses and statutory approvals in order to be compliant with all legal and regulatory requirements.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk density values used were based on an updated study of the average lithological densities across the mine site completed in 2013. This study consisted of a detailed statistical analysis of 72,634 measurements recorded from all underground deposits. These values are also based on over 10 years of production data.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density measurements are taken daily using the water displacement technique. One bulk density measurement is taken for each lithology in every hole every day. An attempt is made to collect a bulk density measurement from every mineralized zone and each lithology represented in drill hole core. A total of 72,634 bulk density measurements have been taken.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Measured Resources are defined from grade control models based on geological mapping and surveyed ore outlines in development drives, diamond drill holes and face samples which are imported into Vulcan and modelled in 3D. Indicated Resources are defined by drilling which is generally 20m x 20m and may range up to 40m x 40m maximum. Lodes classified as Indicated are supported by a minimum of 5 face chip or diamond drill holes. Inferred Resources are defined on a nominal 40m x 40m drilling pattern and may range up to 80m x 80m. Resources based on less than 40m x 40m spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimates, methodology and systems have been subject to one external review through NSR and four internal audits by previous operators and senior technical personnel over the last 10 years.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Jundee mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale and against actual production reconciliation.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Jundee deposit and is likely to have local variability. The global assessment is a better reflection of the average tonnes and grade estimate, further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with previous Mineral Resource estimates and production data was undertaken. Global, level and lode tonnages and grades at various elemental cut-offs were compared and, given the changes in support data, were considered to be consistent.



Long Section – Jundee mine area drillhole traces and mineralised domains.



Plan View – Jundee drillhole collars

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.	Reported Ore Reserve based on numerous Mineral Resource and Grade Control models.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	Mineral Resources are reported inclusive of the Ore Reserves.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits are common along with actual work being based at Jundee site.
	If no site visits have been undertaken indicate why this is the case.	Familiarity with daily mine site operations and historical performance was considered sufficient information to provide the Ore Reserve Estimate.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	Detailed mine design and costing based upon ongoing mine performance.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	This is a current and operating mine with no material Modifying Factors considered

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	All stopes were evaluated on an incremental basis with a fully costed break even cut-off grade of approximately 2.9 gpt.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	Stope shapes were created manually, with a minimum stope mining width of 2.5m.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Deemed appropriate due to ongoing successful implementation of design assumptions on site.
	The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.	2.5m minimum mining width (stopes) and 85% stope mining recovery to account for internal pillars, in line with historical performance.
	The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).	2.5m minimum mining width for stopes.
	The mining dilution factors used.	A 15% tonne dilution factor was used for development.
	The mining recovery factors used.	85% where stope pillars have not been incorporated into the design and 100% for detailed design where pillars have been taken into account.
	Any minimum mining widths used.	The minimum mining width for stopes is 2.5m.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred material is included within the mine plan, however material is only classified as Ore Reserve when the material is able to cover all fixed and variable costs associated with the mining of that material (including capital).
	The infrastructure requirements of the selected mining methods.	Typical underground capital development, in addition to camp, workshop, office, water bores, ROM pad and mill which are already in place.
Metallurgical factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Material will be trucked and processed in the existing Jundee Mill which is a standard CIP plant with gravity circuit, operating since 1995.
	Whether the metallurgical process is well-tested technology or novel in nature.	Well tested technology.
	The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.	Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. Recoveries can range from 87% up to 95% with an average 92.5% on blended feed supported by historical processing performance.
	Any assumptions or allowances made for deleterious elements.	No allowances made and considered immaterial to the mineralisation reported.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	All mineralisation systems have significant bulk drill core test work undertaken prior to mining and current resource/reserves have a history of operational experience.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Yes
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	The Project currently possesses all necessary government permits, licenses and statutory approvals in order to be compliant with all legal and regulatory requirements.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	The Jundee mine has been operating for a number of years, all required surface infrastructure is already in place to facilitate mining and processing.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	All capital costs have been estimated based upon projected requirements and experience of costs incurred through similar activities in the past.
	The methodology used to estimate operating costs.	The operating cost estimates are based upon current and historical costs incurred over previous periods.
	Allowances made for the content of deleterious elements.	None expected

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.	Revenue is based on a gold price $1,500 per ounce (AUD) based on internal forecasts.
	The source of exchange rates used in the study.	Based upon an internal technical and economic analysis.
	Derivation of transportation charges.	Mining and haulage costs are based on current and historical costs incurred in the previous cost periods.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.	Processing costs are based on current and historical processing data from the plant at Jundee.
	The allowances made for royalties payable, both Government and private.	WA State Govt. royalty of 2.5%
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.	N/A
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	Revenue is based on a gold price $1,500 per ounce (AUD) based on internal forecasts (which is seen as representative of current economic forecasts for the period).
Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	All product is sold direct at spot market prices.
	A customer and competitor analysis along with the identification of likely market windows for the product.	N/A
	Price and volume forecasts and the basis for these forecasts.	N/A
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	N/A
Economic	The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.	All costs assumptions are made based on current and historical performance from the plant and direct costs from the existing experienced mining contractor. The economic forecast is seen as representative of the current market condition, with an assumed discount rate of 8%.
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The revised business plan, based on the updated Ore Reserve is relatively insensitive to gold price fluctuations due to the higher grade nature of the mineralised systems.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate.	Agreements are in place and are current with all key stakeholders including traditional land owner claimants.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	
	Any identified material naturally occurring risks.	None
	The status of material legal agreements and marketing arrangements.	None
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	A current operating operation with all government and third party approvals in place for the stated reserves.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	All Ore Reserves include Proved (if any) and Probable classifications are based on the Measured and Indicated Mineral Resource classifications
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The results appropriately reflect the Competent Persons view of the deposit
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	Negligible.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve has been prepared and peer reviewed internally within Northern Star Resources.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	Confidence in the reserve is high based on current operational practices and actual operating costs.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The Ore Reserves are best reflected as Global estimates.
	Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	Not applicable, the mine is currently in operation. No material Modifying Factors have been applied or are applicable.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Reconciliation of past production results from mining at Jundee have been considered and factored into the Ore Reserve assumptions where appropriate.

JORC Code, 2012 Edition – Table 1 Report: Jundee: Open Pits– As at June 30 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling is by both diamond drilling (DD) and Reverse Circulation (RC) drilling completed by both NSR and previous operators. The majority of RC drilling and sampling was undertaken by previous operators with only a small volume (<1% of total RC) completed by NSR. DD samples are generally NQ2 core with sample intervals defined by the geologist to honour geological boundaries ranging from 0.3 to 1.2m in length. RC samples are collected via rig-mounted static cone splitter with sample falling though a riffle splitter or inverted cone splitter, splitting the sample in 88%/9%/3% ratio. 9% split retained for 1m composites and 3% split retained for 4m composites. 1m samples are sent for further analysis if any 4m composites return a gold value > 0.1ppm or intervals containing alteration/mineralisation failed to return a significant composite assay result. RC and DD sampling by previous operators are assumed to be industry standard at that time often using 1m samples after initial 4m composites. The majority (>90%) of samples used for Mineral Resource estimates are RC with the exception of the Cook Deposit (62%).
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	DD core is aligned and measured by tape, comparing back to down hole core blocks consistent with industry practice. RC metre intervals are delineated with spray paint to determine metres drilled. Sample rejects is left on the sample pad to indicate metres drilled for the hole. RC and surface core drilling completed by previous operators (pre-2002) to industry standard at that time.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Diamond drilling is completed to industry standard using varying sample lengths (0.3 to 1.2m) based on geological intervals, which are then crushed and pulverised to produce a ~200g pulp sub sample to use in the assay process. Diamond core samples are fire assayed (50g charge) and screen fire assayed for vis gold. Visible gold is occasionally encountered in core. RC sampling to industry standard at the time of drilling where ~4kg samples are pulverised to produce a ~200g pulp sample to utilise in the assay process. RC samples were fire assayed (50g charge).
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling is carried out using a face sampling hammer and a 130mm diameter bit. Previous operators surface diamond drilling carried used both HQ2, HQ3, PQ2 (triple tube) and NQ2 (standard tube) techniques. Sampled sections are generally NQ2. Core is routinely orientated using the ORI-shot device.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	RC – Approximate recoveries are sometimes recorded as percentage ranges based on a visual and weight estimate of the sample. DD – Recoveries are recorded as a percentage calculated from measured core verses drilled intervals.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Diamond drilling practice results in high core recovery due to the competent nature of the ground. RC and diamond drilling by previous operators (pre-2002) are to industry standard at that time.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	There is no known relationship between sample recovery and grade, diamond drill sample recovery is very high.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	DD core and RC chip samples have been logged by qualified geologists to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies Percussion holes logging were carried out on a metre by metre basis and at the time of drilling. Surface DD core and RC logging completed by previous operators (pre-2002) assumed to be to industry standard.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is Qualitative and Quantitative, all core is photographed wet (some older core is pre-digital, photos not all reviewed). Visual estimates are made of sulphide, quartz and alteration as percentages.
	The total length and percentage of the relevant intersections logged.	100% of all DD and RC drilling is logged.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core is half cut with an Almonté diamond core saw. Sample intervals are defined by a qualified geologist to honour geological boundaries. The left half is archived. All mineralised zones are sampled plus associated visibly barren material in contact with mineralised zones. Core is sampled on the width of the geological/mineralized structure with a minimum sample length of 0.3m and a maximum sample length of 1.2m. Total weight of each sample generally does not exceed 5kg. For pre-Northern Star (NSR) best practice is assumed.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC drilling uses a cyclone mounted, 3 tier riffle splitter or inverted cone splitter. Pre NSR, RC sub-sampling assumed to be at industry standard at that time.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	DD core is dried at 100°C to constant mass, all samples below approximately 4kg are totally pulverised in LM5's to nominally 90% passing a 75µm screen. The few samples generated above 4kg are crushed to <6mm and riffle split first prior to pulverisation. RC samples are dried at 100°C to constant mass, all samples below approximately 3kg are totally pulverised in LM5's to nominally 85% passing a 75µm screen. Samples generated above 4kg are crushed to <6mm and cone split to nominal mass prior to pulverisation. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Confirmed that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results. For RC samples, no formal heterogeneity study has been carried out or nomographed. An informal analysis suggests that the sampling protocol currently in use are appropriate to the mineralisation encountered and should provide representative results For pre- NSR samples, best practice is assumed.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Repeat analysis of pulp samples (all sample types) occurs at an incidence of 1 in 20 samples. RC drilling by previous operators to industry standard at that time
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	Field duplicates, (i.e. other half of cut core) have not been routinely assayed. RC drilling by previous operators assumed to be to industry standard at that time.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate. No formal nomograph study has been conducted on the RC primary sub sample split. Industry standard practice supports splitting of primary sub samples at particle sizes of <6mm and P_{80} 75µm.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	For all drill samples, gold concentration was determined by fire assay using the lead collection technique with a 50-gram sample charge weight. An AAS finish was used to be considered as total gold. Various multi-element suites are analysed using a four acid digest with an AT/OES finish. RC drilling by previous operators (pre 2002) to industry standard at the time.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Not applicable to this report.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	- The QAQC protocols used include the following for all drill samples: - Field QAQC protocols used for all drill samples include commercially prepared certified reference materials (CRM) inserted at an incidence of 1 in 30 samples. The CRM used is not identifiable to the laboratory with QAQC data is assessed on import to the database and reported monthly, quarterly and yearly. - Laboratory QAQC protocols used for all drill samples include repeat analysis of pulp samples occurs at an incidence of 1 in 20 samples and screen tests (percentage of pulverised sample passing a 75µm mesh) are undertaken on 1 in 40 samples. - The laboratories' own standards are loaded into the database and the laboratory reports its own QAQC data on a monthly basis.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
		- In addition to the above, about 3% of diamond drill samples are sent to a check laboratory. Samples for check - assay are selected automatically from holes based on the following criteria: grade above 1gpt or logged as a mineralized zone or is followed by feldspar flush or blank. - Failed standards are generally followed up by re-assaying a second 50g pulp sample of all samples in the fire above 0.1ppm by the same method at the primary laboratory. Both the accuracy component (CRM's and third party checks) and the precision component (duplicates and repeats) of the QAQC protocols are thought to demonstrate acceptable levels of accuracy and precision. QAQC protocols for surface RC and DD drilling by previous operators (pre-2002) is assumed to be industry standard.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Significant intersections not verified.
	The use of twinned holes.	There is no purpose drilled twinned holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is imported into SQL database using semi-automated or automated data entry with hard copies of core assays and surveys are stored at site. Visual checks are part of daily use of the data in Vulcan. Data from previous operators thoroughly vetted and imported to SQL database.
	Discuss any adjustment to assay data.	The first gold assay is almost always utilised for any resource estimation except where evidence from re-assaying and/or check-assaying dictates. A systematic procedure utilizing several re-assays and/or check assays is in place to determine when the final assay is changed from the first gold assay. Some minor adjustments have been made to overlapping data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Collar positions are recorded using conventional survey methods based on Leica TS15 3" total stations and Trimble R10 GNSS instruments. The location of each station is referenced to state-wide network of Standard Survey Marks (SSM) established and coordinated by the Department of Land Administration (WA Government). Where regional drill hole positions are distant from the SSM network, the world wide Global Navigational Satellite System (GNSS) network is used. Positional checks are carried out using a combination of existing known positions (usually based on prominent landmarks) and grid referenced information such as ortholinear rectified photogrammetry based on the Australian Map Grid 1984 (AMG84_51). Collar coordinates are recorded in AMG84 or Local Jundee Grid (JUNL2) dependant on the location and orientation of ore-bodies. Cross checks were made on the survey control points and data in June 2005. Collar information is stored in both local coordinates and AMG84 coordinate in the drilling database. In-mine drill-hole collars are normally accurate to 10 cm. Surface collar RL's have been validated utilizing an airborne elevation survey by Arvista in February 2015. Multi shot cameras and gyro units were used for down-hole survey. Previous drilling has been set-out and picked up in both national and local grids using a combination of GPS and survey instruments and are assumed to be to industry standards
	Specification of the grid system used.	Collar coordinates are recorded in AMG84 Zone 51 (AMG GN) and local Jundee Grid (JUNL2) dependant on the location and orientation of ore-bodies. The difference between Jundee mine grid (GN) and magnetic north (MN) as at 31 December 2011 is 39° 35' 00" and the difference between magnetic north (MN) and true north (TN) is 1° 34' 30". The difference between true north (TN) and AMG84 Zone 51 (AMG GN) is 1° 02' 47". The difference between true north and GDA is zero.
	Quality and adequacy of topographic control.	Topographic control is from Digital Elevation Contours (DEM) 2010, 1m contour data and site surveyed pit pickups.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	All Ore Reserves are based on a maximum drill hole spacing of 40m x 40m and all Mineral Resources are based on a maximum of 80m x 80m.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	Ore Reserves are generally based on 20m x 20m drilling up to a maximum of 40m x 40m with Mineral Resources are generally based on 40m x 40m drilling up to a maximum of 80m x 80m. The data spacing and distribution is sufficient to establish geological and/or grade continuity appropriate for the Mineral Resource and classifications to be applied.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Whether sample compositing has been applied.	Core is sampled to geology, sample compositing is not applied until the estimation stage. RC samples are initially taken as 4m composites to be replaced by 1 m samples if any 4m composite values returned a gold value > 0.1ppm or intervals containing alteration/mineralisation fail to return a significant 4m composite assay result. No RC samples greater than 1m were used in estimation.
Orientation of data in relation to geological structure	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of sampling is generally perpendicular to the main mineralisation trends. The orientation achieves unbiased sampling of all possible mineralisation and the extent to which this is known.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The drill orientation to mineralised structures biases the number of samples per drill hole. It is not thought to make a material difference in the resource estimation. As the opportunity arises, better angle holes are infill drilled.
Sample security	The measures taken to ensure sample security.	All samples are selected, cut and bagged in tied numbered calico bags, grouped in larger tied plastic bags, and placed in large sample cages with a sample submission sheet. The cages are either sent to the site laboratory or are transported via freight truck to Perth, with consignment note and receipted by external and independent laboratory All sample submissions are documented and all assays are returned via email and hard copy. Sample pulp splits from the site lab are stored at the Jundee mine site and those from the Newburn Lab in Perth are stored at the Newburn Lab. RC samples processed at Min Analytical and Bureau Veristas have had the bulk residue discarded and pulp packets sent to Jundee mine site for long term storage. Pre NSR operator sample security assumed to be similar and adequate.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Historical audits of all Jundee data were carried out by previous operators. In 2012, Francois-Bongarcon (Agoratek International) conducted a heterogeneity studies, audit of site laboratory, and audit of plant samplers. Both audits found the sampling techniques and data to be adequate. All recent NSR sample data has been extensively QAQC reviewed both internally and externally. Pre-NSR data QAQC audits found to be minimal although in line with industry standards of the time.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Jundee Project consists of 62 Mining Leases and 1 General Purpose Lease covering a total area of approximately 57,422.2 Ha. All are registered in the name of Northern Star Resources Limited. The Project also includes 23 Miscellaneous Licences, 3 Groundwater Licenses, a Pipeline License and the Jundee Pastoral Lease covering the bore fields, roads, airstrip, and gas pipeline. There are numerous access agreements in place including access rights over part of M53/193 which lies contiguous to, and beneath, the General Purpose Lease on which the Jundee processing plant is located. There are no heritage issues with the current operation. The majority of the Jundee leases are granted Mining Leases prior to 1994 (pre Mabo) and as such Native Title negotiations are not required. During 2004, two agreements where struck between Ngaanyatjarra Council (now Central Desert Native Title Services (CDNTS)) and NYO, these agreements being the Wiluna Land Access Agreement 2004 and the Wiluna Claim Heritage Agreement 2004.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All leases and licences to operate are granted and in the order for between 3 and 21 years.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Data relevant to this resource was predominantly compiled by NYO (Newmont Yandal Operations) who operated the mine from 2002 -June 2014. Prior to 2002, data gathered by others is as follows: The Jundee/Nimary Deposits were discovered in the late 1980's/early 1990's after LAG and soil sampling by Mark Creasy (Jundee) and Hunter Resources (Nimary) identified large surface gold anomalies. The deposits were drilled out over the following years by Eagle Mining and Great Central Mines (which formed a joint venture with Creasy and later purchased his share).

Criteria	JORC Code explanation	Commentary
		Open pit operations commenced in mid-1995, with the first gold poured in December 1995. Great Central Mines assumed full control of the field with its successful takeover of Eagle Mining in mid-1997. Great Central Mines was later taken over by Normandy in mid-2000, which in turn was taken over by Newmont in early-2002. All previous work is accepted and assumed to industry standard at that time.
Geology	Deposit type, geological setting and style of mineralisation.	Jundee is an Archean lode-gold mineralized deposit that is part of the Northern Yandal Greenstone belt. Gold mineralisation is controlled by a brittle fracture-system, is commonly fracture-centred, and is predominantly hosted in dolerite and basalt. Mineralisation can be disseminated or vein style host.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Too many holes to practically summarise all drill information used. (See diagram).
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exclusion of the drill information will not detract from the understanding of the report. Holes are close spaced and tightly constrained to an active mine area.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results not being released at this time.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results not being released at this time.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalents are reported
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results not being released at this time.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Due to complex mineralisation geometry and varying intercept angles the true thickness is manually estimated on a hole by hole basis
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	Exploration results not being released at this time.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Plan view and long section view of Jundee showing drill collars is attached.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Exploration results not being released at this time.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Exploration results not being released at this time.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Not applicable.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Exploration results not being released at this time.

NORTHERN STAR RESOURCES LIMITED

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

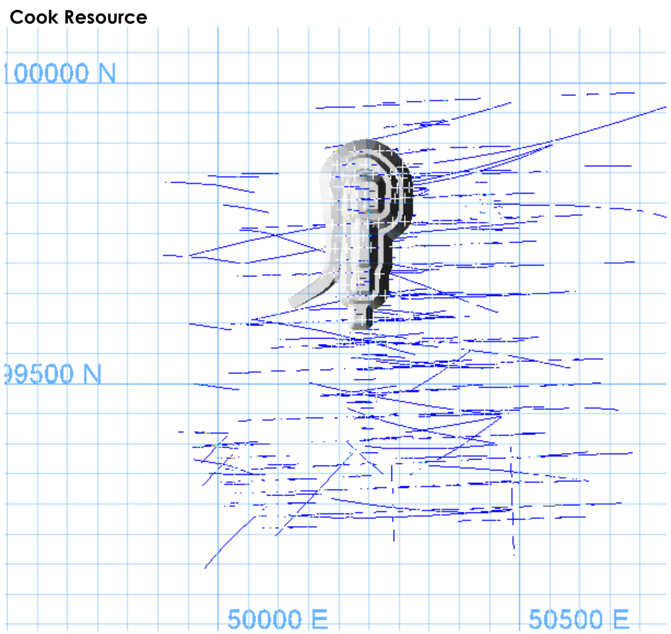
Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Sampling and logging data is digitally entered into a tablet then transferred to an SQL based database. There are checks in place to avoid duplicate holes and sample numbers. Where possible, raw data is loaded directly to the database from lab, logging and survey derived files. Pre NSR data considered correct.
	Data validation procedures used.	Pre-NSR and pre-NYO data has been validated by internal database administrators.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person for this resource report has worked on site for extensive periods between 2005 and 2016.
	If no site visits have been undertaken indicate why this is the case.	Site visits have been undertaken.
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology and estimated mineral resource using Vulcan and Leapfrog software. The confidence in the geological interpretation is relatively high, though a certain degree of uncertainly always remains due to the structurally complex and nuggetty nature of the ore body on a local scale. The confidence is supported by all the information and 18 years of open pit and underground operations.
	Nature of the data used and of any assumptions made.	All available geological data was used in the interpretation including mapping, drilling, oxidation surfaces, and underground style high grade ore zone interpretations.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	No alternative interpretations have been completed or put forward.
	The use of geology in guiding and controlling Mineral Resource estimation.	Drill core logging and pit mapping used to create 3D constrained wireframes.
	The factors affecting continuity both of grade and geology.	Continuity of the grade varies significantly, though the lodes with the greatest continuity are generally sub-parallel to the dolerite and basalt packages in which they are hosted. Splays or link lodes coming off of this main trend tend to have a shorter continuity.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Mineralized zones are variable with true width ranging from 0.3m to 5m. They are extensive along strike and down dip, up to 1,400m and 500m respectively, but are often highly discontinuous and generally have a tabular geometry. Depth = surface to ~2123mRL (deepest extent of Open Pit Resources - Cook Resource)
Estimation and modelling techniques.	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Domains are set by grouping lodes as dictated by their structural setting, geological mineralisation and statistical characteristics. The raw data is subdivided into domains based on geological controls and further analysed for correlation and similarity using statistics. The purpose of this analysis is to determine further domaining of the data for variographic purposes (by combining groups of lodes). Open Pit Mineral Resource estimation utilises 1m straight composite data for all RC composites coupled with seam composite generation from hangingwall to footwall) for the majority of DD composites. Detailed exploratory data analysis is carried out on each deposit using Snowden Supervisor software. The majority of the Mineral Resource is estimated using ordinary kriging (OK). A minor proportion of the Mineral Resource is estimated using inverse distance squared (ID2). The estimation type used is dictated by the dataset size of the domain. Vulcan and Leapfrog software is used for data compilation, domain wire framing, calculating and coding composite values, estimating and reporting. Maximum distance of extrapolation from data points was statistically determined and varies by domain. Block model volumes were compared to wireframe volumes to validate sub-blocking Where OK or ID2 estimates were used, treatment of extreme high grades was dealt with by using a cap grade strategy.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	Both historical estimates and mapping/production is comparable with new estimate.
	The assumptions made regarding recovery of by-products.	No assumptions are made and only gold is defined for estimation.
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model

NORTHERN STAR RESOURCES LIMITED

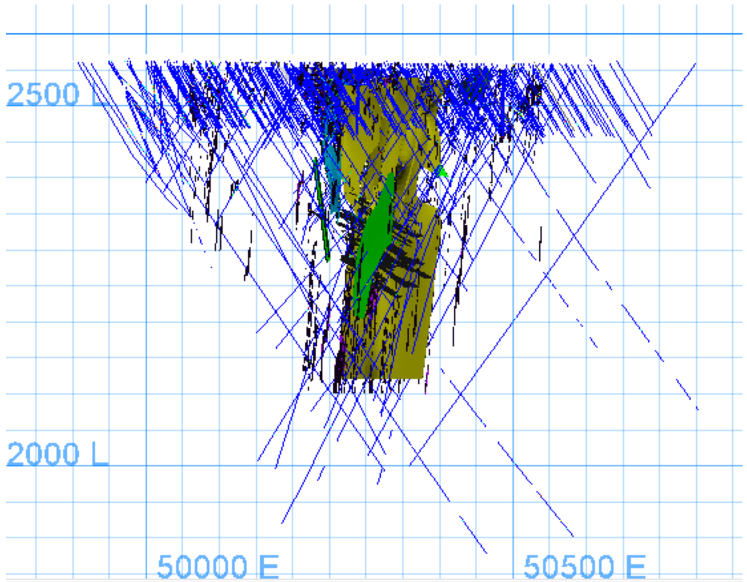
Criteria	JORC Code explanation	Commentary
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	All Open Pit Mineral Resource models use a 1m straight composite generation based on RC sample length where the parent block sizes are 10 m in strike, 3m in RL, and 3m across strike direction. Sub-block sizes are 1m in strike, 1m in RL, and 1m across strike direction Ore Reserves are generally based on 20m x 20m drilling up to a maximum of 40m x 40m. Mineral Resources are generally based on 40m x 40m drilling up to a maximum of 80m x 80m.
	Any assumptions behind modelling of selective mining units.	A 2m minimum mining width for open pit environment is assumed.
	Any assumptions about correlation between variables.	There is no correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	Mineralised wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe. Estimations are constrained by the interpretations.
	Discussion of basis for using or not using grade cutting or capping.	Top cuts were determined by a range of statistical techniques including analysis of histogram, Log-probability and Mean- CV plots • Contained Metal Plots assess contribution of the highest values on the quantity of metal in an estimate, • Coefficient of Variation plots analyse impact top cuts have on CV. A range of top cuts are then selected for each domain utilising the above strategies and an appropriate top cut chosen subsequent to further examination in order to assess sensitivity of selected cap grades and associated risk. Metal estimated in the resource models are finally reconciled with production models of like areas to determine the appropriateness of the high grade treatment on the assays. No top cutting or capping of high grades is done at the raw sample or compositing stage. For OK and ID2, treatment of the high grade assays occurs at the estimation stage. In MIK estimation this occurs in the form of the grade assigned to the highest indicator bin. Top cuts vary by domain and range from 20gpt – 2,000gpt.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	The Mineral Resource estimate was validated using processes that are based on a combination of visual, graphical and reconciliation validations summarised as: - Visual validation of the lode and lithology coding of both the composite data and the block model. - Comparison of lode wireframe volumes to block model volumes. - Visual validation of Mineral Resource estimate against composite data in plan, section, and 3D. - Sensitivity to top-cut values uses a variety of top-cuts which are compared to themselves and to the un-cut nearest neighbour estimate at a variety of cut-offs. - Comparison of nearest neighbour, ID2 and OK estimates to the final estimate (generally OK & ID2). These comparisons are conducted through visual validation and trend analysis along Northing, Easting and RL slices. - Comparison with previous Mineral Resource estimates. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and, given the changes in support data, were considered to be consistent. - Comparison of Mineral Resource estimate versus grade control models. - Statistical comparison of composites versus all estimates in block model with trend analysis plots for each domain produced by Northing / Easting / RL. The Mineral Resource estimate generally shows a reasonably reflection of the composites where there are high numbers of composites used in the estimate. When the numbers of samples reduce the accuracy of the estimation suffers and a more significant deviation is noted between the Mineral Resource estimate and associated composite data. These deviations are taken into account when assigning a resource classification.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry basis. Moisture content within the ore is expected to be low.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	All Jundee Open Pit Mineral Resources are reported at a 1gpt cutoff grade.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	A 2m minimum mining width for Open Pit environment is assumed and incorporated into the modelling and estimation.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	Assumed all material will be trucked and processed in the Jundee Mill. Recovery factors vary for the various mining areas and are based on lab testing and on-going operational experience. No metallurgical assumptions have been built or applied to the resource model
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfield project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Project currently possesses all necessary government permits, licenses and statutory approvals in order to be compliant with all legal and regulatory requirements.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	RC bulk density values used were based on analysis of grab samples obtained during excavation of open cut mines. Calculated averages were applied to density boundaries for each model. DD bulk density values are based on an updated study of the average lithological densities across the mine site completed in 2013. This study consisted of a detailed statistical analysis of 72,634 measurements that have been recorded from all deposits. These values are also in agreement with over 10 years of production data.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Bulk density measurements for core samples are taken daily using the water displacement technique. One bulk density measurement is taken for each lithology in every hole every day. An attempt is made to collect a bulk density measurement from every mineralized zone and each lithology represented in drill hole core. A total of 72,634 bulk density measurements have been taken. Historical bulk density measurements for RC Samples were taken using the water displacement technique. All oxide/transitional samples were coated in wax before analysis whilst fresh rock samples were analysed as per DD samples
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied in accordance with specific lithologies, mineralisation, and weathering states.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Measured Resources are defined from grade control models based on geological mapping, diamond and RC drill holes which are imported into Vulcan and modelled in 3D. Indicated Resources are defined by drilling which is generally 25m x 25m and may range up to 40m x 40m maximum. Material classified as Indicated are supported by a minimum of 5 RC and Diamond drill holes. Inferred Resources are defined on a nominal 40m x 40m drilling pattern and may range up to 80m x 80m. Resources based on less than 40m x 40m spaced drilling, but which have a low level of confidence in the geological interpretation may also be classified as inferred.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Input and geological data is assumed accurate backed up by previous successful mining history at the site on this mineralisation.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	This Mineral Resource estimate is considered representative with comments noted in the discussion below.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The Mineral Resource estimates, methodology and systems have been subject to four internal audits by previous operators (NYO) and senior technical personnel over the last 10 years.

Criteria	JORC Code explanation	Commentary
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Mineral Resource estimate is considered as robust and representative of the Jundee mineralisation with local estimates considered variable in nature. The application of geostatistical methods has supported to increase the confidence of the model and quantify the relative accuracy of the resource on a global scale and against actual production reconciliation
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This Resource report relates to the Jundee deposit and is likely to have local variability within a global assessment further supported and reconciled against actual mine production.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Comparison with previous Mineral Resource estimates and production data was undertaken. Global, level and lode tonnages and grades, at various elemental cut-offs were compared, and, given the changes in support data, were considered to be consistent.

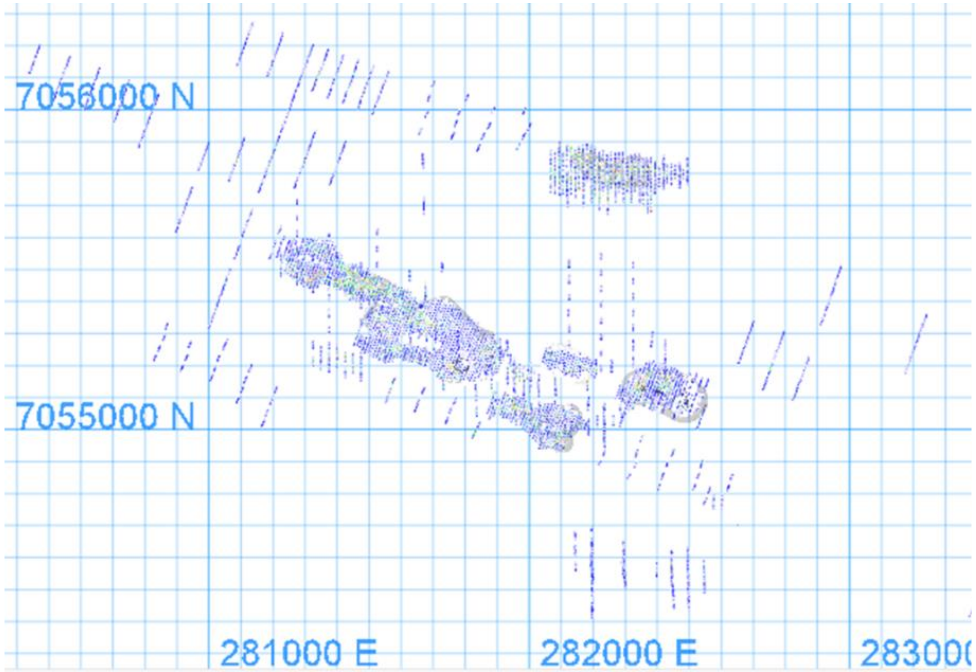


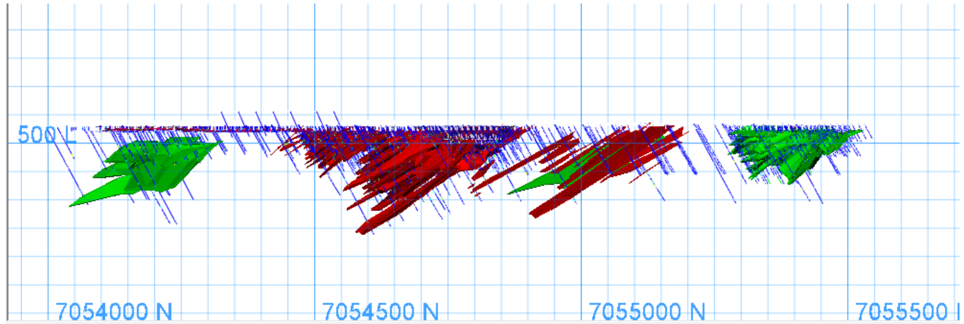
Plan view: Cook Resource drill collars



Long Section – Cook resoruce drillhole traces and mineralised domains

Vause Resource

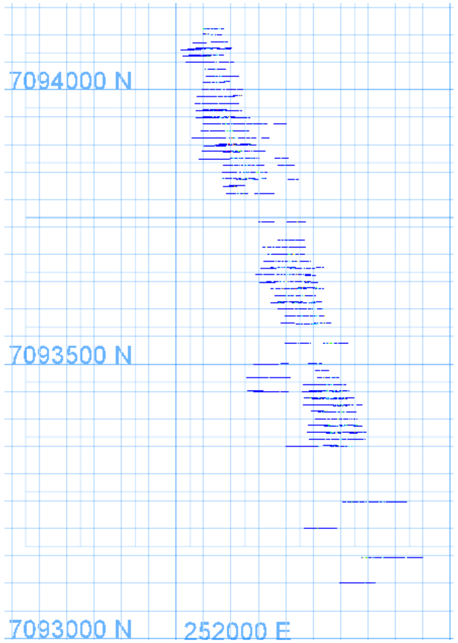


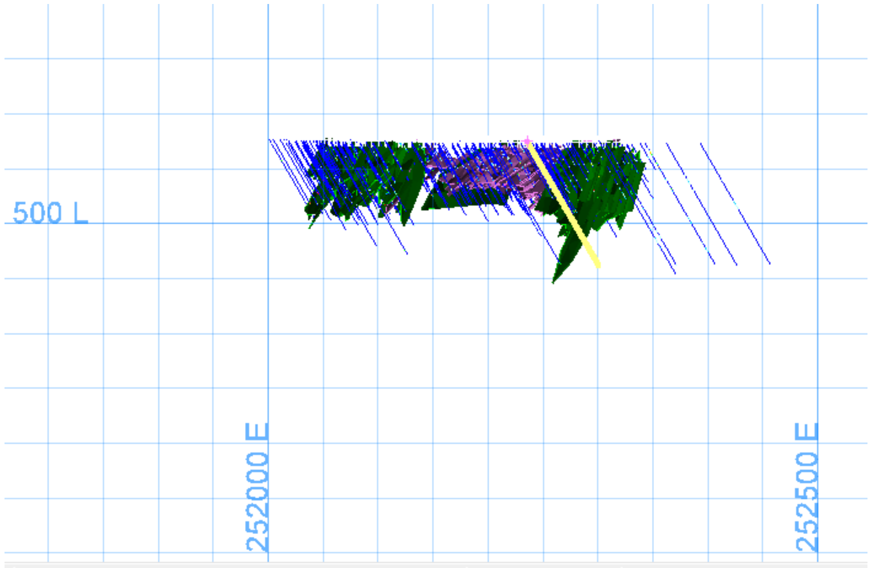


Plan view: Vause mine area Drill hole collars

Long Section – Vause mine area drillhole traces and mineralised domains

Desert Dragon Resource

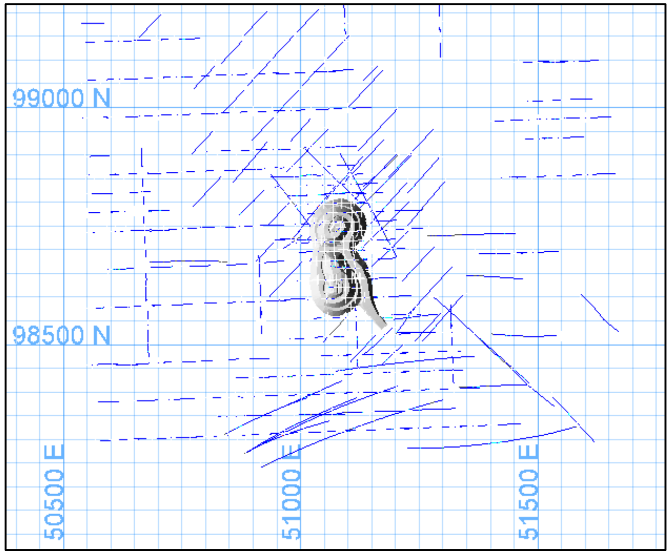




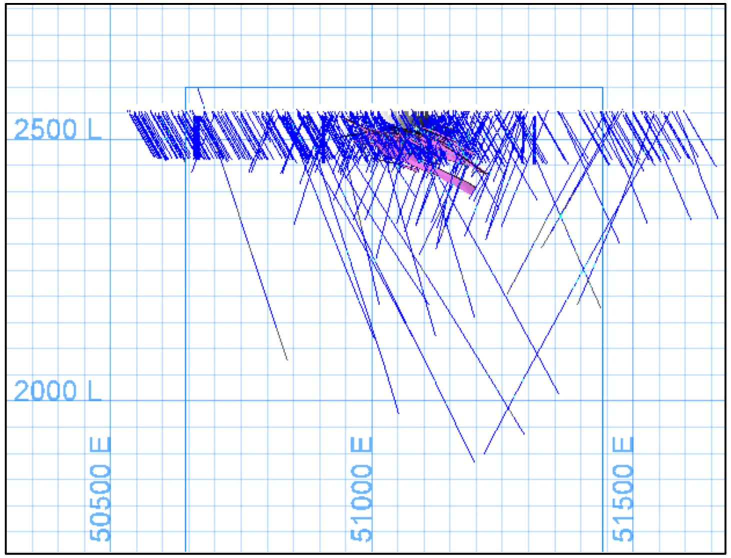
Plan view: Desert Dragon mine area Drill hole collars

Long Section – Desert Dragon mine area drillhole traces and mineralised domains

Menzies Resource



Plan view: Menzies mine area Drill hole collars



Long Section – Menzies mine area drillhole traces and mineralised domains

NORTHERN STAR RESOURCES LIMITED

JORC Code, 2012 Edition – Table 1 Report: Groundrush Resource Results as at 30th June 2016

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.	Sampling was completed using diamond (DD) core or reverse circulation (RC) drilling. Some drill-holes were pre-collared using RC drilling methods and completed with DD tails while others were drilled DD core from surface.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond drilling used NQ2 sized core (minor HQ3 used). Drill core was oriented, aligned and half-cut using metre intervals and geologically determined intervals (min 0.3 metres) with geologically determined intervals taking precedence.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Samples were dispatched to ALS Perth for preparation by drying, crushing to <6mm for samples <3kg (sample >3kg are crushed to 2mm then rotary split), and pulverising the entire sample to <75µm. Bulk pulp splits (300g) were then taken for fire assay purposes. Fire assay was conducted using a 50g charge and an AAS finish.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	RC drilling used a 5.25" face sampling hammer drill bit. Diamond core (including tails) was NQ2 size and oriented where possible (using an in-line core orientation tool).
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	DD core recoveries are recorded as a percentage calculated from measured core versus drilled intervals length.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	The DD contractors adjusted their rate of drilling and method if recovery issues arose. All recovery was recorded by the drillers on core blocks. This was checked and compared to the measurements of the core by the geological team. Any issues were communicated back to the drilling contractor at the time and necessary adjustments made.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	Overall DD recoveries were good. There has been no work completed to determine if any relationship between recovery and grade exists.
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	DD core is logged by company geologists to industry standards. All relevant features such as lithology, structure, texture, grain-size, alteration, oxidation state, vein style and veining percentage per interval, and mineralisation were recorded in the geological logs.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	All logging was quantitative where possible and qualitative elsewhere. All DD core was photographed.
	The total length and percentage of the relevant intersections logged.	The entire length of each RC and DD hole was logged.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	DD core was cut in half using an Almonté diamond core saw. Half core was sampled on intervals between 0.3 - 1.1m in length honouring lithological boundaries. The right-hand side of the core was bagged as the primary sample for analysis. The remaining half of core was archived and stored for reference.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples were collected in plastic bags; primary samples were collected as 4m speared composites. Assay results of composite samples with gold grades over 0.5gpt were re-split from their respective 1m bulk sample using a 3-tier riffle splitter.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample preparation was conducted at ALS Perth. Samples were dried at less than 110°C to prevent sulphide breakdown. Samples were jaw crushed to a nominal -6mm particle size. If the sample weight is greater than 3kg, a Boyd crusher with rotary splitter is used to reduce the sample size to less than 3kg at a nominal <2mm particle size. The entire crushed sample (if less than 3kg) or sub-sample is then pulverised to 90% passing 75µm, using a Labtechnics LM5 bowl pulveriser. 300g pulp subsamples are then taken with an aluminium scoop and stored in labelled pulp packets.

Criteria	JORC Code explanation	Commentary
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Grind checks are performed at both the crushing stage (2mm) and pulverising stage (75µm), requiring 90% of material to pass through the relevant size.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate / second-half sampling.	The sample preparation is considered appropriate and to industry standard. No field duplicates were submitted for DD core sampling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate.
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	A 50g fire assay charge is fired with an introduced lead flux and fired in a typical gas-fired furnace. The resultant "button" was then totally digested by Aqua Regia before using Atomic Absorption Spectroscopy (AAS) determination for gold.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical tools were used to determine any element concentrations.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Certified reference materials (CRMs) were inserted into the sample sequence at a rate of 1 per 20 samples to ensure correct calibration. Any values outside of 3 standard deviations were re-assayed with a new CRM. Certified Blanks (Bunbury Basalt) were routinely inserted into the sample sequence at a rate of 1 per 25 samples and again specifically after potential or existing high grade mineralisation to test for contamination. Failures of blanks above 0.1gpt were followed up and re-assayed. New pulps were prepared if failures continued.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	All significant intersections were verified by a Northern Star Senior geologist on-site during the drill-hole validation process and later by signed off by a Competent Person, as defined by JORC.
	The use of twinned holes.	No twinned holes were drilled for this data set.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Geological logging was directly entered into LogChief logging package, exported into an Access database on-site. Assay files are loaded directly into the Access database by the Senior on-site geologist. Hardcopy and electronic copies of the data was stored for future reference.
	Discuss any adjustment to assay data.	No adjustments were made to the assay data.
Location of data points	Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	Planned holes were pegged using a Differential GPS by company geologists and field assistants. The final hole collars were surveyed (by company geologist and field assistant) by Differential GPS in the MGA 94_52 grid. The accuracy of the DGPS was validated by an external surveyor using an ultra-accurate temporal multi-satellite corrected RTK jigger. Down-hole surveys were performed using a Reflex Ez-Trac or Ranger camera system, recording the down-hole dip and magnetic azimuth. These results were then uploaded into the Access database. At the completion of a hole, a surface referenced gyro survey was performed and upload into the Access database as well as being validated against single shot downhole surveys.
	Specification of the grid system used.	Collar coordinates were recorded in MGA94 Zone 52.
	Quality and adequacy of topographic control.	Topographic control was established through detailed aerial and ground survey control from previous mining operations.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	Drill-hole spacing across the area varies, although minimum 25m spacing was targeted during the design and drilling phases.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The drill spacing and geological continuity is sufficient to classify this resource as Indicated and Inferred.
	Whether sample compositing has been applied.	Samples are composited to 1m as part of the estimation process
	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	The orientation of specific targets is typically well understood and the drilling direction is considered near perpendicular to the orientation of mineralisation.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
Orientation of data in relation to geological structure	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No sampling bias is considered to have been introduced by the drilling orientation.
Sample security	The measures taken to ensure sample security.	Prior to laboratory submission, samples are stored by Northern Star Resources in a secure yard. Once submitted to the ALS laboratory, they are stored in a secure fenced compound and tracked through the assay process by established chain of custody procedure and via audit trails conducted by independent and company specialists.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The NST database was reviewed internally and no material issues were identified.

Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	All holes mentioned in this report are from the Groundrush deposit located within the ML22934 tenement which is owned by Tanami Gold NL (75%) and Northern Star Resources Limited (25%). There are statutory royalties' payable to the Northern Territory Government and a range of payment obligations under existing agreements with the Central Lands Council.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	No known impediments exist and the tenements are in good standing
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The Groundrush area has been explored since the mid 1980's. Numerous companies, including Zapopan NL, Otter Gold NL, Normandy Mining Ltd, Newmont (Asia Pacific), and Tanami Gold NL have been active in the area. Previous drilling at this project adds gold grade and geological context to the subsequent Northern Star Resources interpretation of the area as tested by the drill holes covered by this report.
Geology	Deposit type, geological setting and style of mineralisation.	The Groundrush deposit is hosted by rocks of the Killi Killi Formation exposed in a narrow N to NNW trending corridor flanked by lobes of the younger Frankenia Dome granite. Groundrush lies within rocks of a similar age to the host rocks of The Granites and Dead Bullock Soak gold deposits 100km to the south, but older than the Mount Charles Formation, which hosts the Tanami gold deposits 50km south west. Less than 1 km to the north of Groundrush, the Killi Killi beds are truncated by a fault bounded outlier of younger sediment of the Mount Charles Formation. At Groundrush, a package of relatively undeformed, steeply west dipping, sedimentary rocks are intruded by two tabular dolerite units which are broadly conformable with bedding. The main dolerite body exposed in the open pit consists of a coarser grained leucocratic quartz dolerite. Gold mineralisation is mainly hosted in quartz-sulphide veins and stockwork zones within steeply dipping shear zones in the quartz dolerite unit as well as flat dipping quartz-sulphide brittle fracture veins.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: o easting and northing of the drill hole collar o elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar o dip and azimuth of the hole o down hole length and interception depth o hole length.	Exploration results not being reported.
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exploration results not being reported.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	Exploration results not being reported.

NORTHERN STAR RESOURCES LIMITED

Criteria	JORC Code explanation	Commentary
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Mineralised intersections were composited to 1m with smaller intersects distributed throughout intersection. Top cut were used and ranged from10-150gpt depending on the domain.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values have been used in this resource
Relationship between mineralization widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.	Exploration results not being reported
	If the geometry of the mineralisation with respect to the drill-hole angle is known, its nature should be reported.	The exact orientation of the Groundrush mineralised system is generally well understood. Geometry of the mineralisation to drill hole intercepts generally at a high angle, often nearing perpendicular. There is enough historic exploration and production data at Groundrush to infer geological continuity in mineralisation reported.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	The downhole widths have been clearly specified when used.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Appropriate plans and section have been included in this release.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	Both high and low grades have been reported accurately, clearly identified with the drill-hole attributes and 'From' and 'To' depths. All intercepts for all holes have been reported regardless of grade.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	Bulk density were conducted on every fifth hole throughout the waste and mineralized zones.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).	Drilling is continuing in 2016 to determine the extents of the Groundrush system.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Appropriate diagrams accompany this release.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in Section 1, and where relevant in Section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.	Logging data is entered directly into the logging package Logchief. Constrained look-up lists, depth and some interval validation are inbuilt and ensure that the data collected is correct at source. Data was exported as .csv and imported into a "restricted access" Access database Sampling and raw assay files were directly imported into a "restricted access" Access database, with internal validations and QAQC protocols used to check integrity. Pre-NSR data assumed correct but no validation has been undertaken. For all data, the drilling looked reliable visually and no overlapping intervals were noted.
	Data validation procedures used.	NST data validated by internal protocols within the access database and by database administrators. Pre-NSR data has been validated by previous owners and is assumed to be correct. One hole was excluded due to unrepresentative intercept angle.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Site visits have been undertaken before and during drilling program by the Competent Person.
	If no site visits have been undertaken indicate why this is the case.	Site visited.

Criteria	JORC Code explanation	Commentary
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.	The interpretation of the deposit was carried out using a systematic approach to ensure continuity of the geology by the supervising and logging geologists. Sectional interpretations were digitized in Vulcan software and triangulated to form three dimensional solids. Confidence in the geological interpretation is moderate to high. Weathering zones and bedrock sub surfaces were also created.
	Nature of the data used and of any assumptions made.	All available valid data was used including drill data, mapping, and previous interpretations. NSR drilled 118 of the 778 holes used in the current resource. Where pre-NSR drill data was used, it is assumed correct and to industry standards of the time.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	A previous resource used narrow, high grade interpretations based on the structural data. While those narrow structures do exist, it is evident from the infill grade control, pit mapping and continues drilling that the narrow structures form larger cohesive units. The effect of the broader interpretation approach results in lower grade, higher tonnes and a realistic model to be used for economic studies.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology is used to constrain the mineralised packages (containing variously orientated quartz veins) within the Groundrush dolerite host.
	The factors affecting continuity both of grade and geology.	Grade continuity is related to mineralised packages extent within Groundrush dolerite host.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	Maximum Strike Length = 1,650m with individual zones 50 to 1,100m long Maximum Width = 80m with zones 2 to 35m thick Maximum Depth = from surface to ~680m below surface
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Ordinary Kriging (OK) was used to estimate this resource using Vulcan 9.1 software. Domains are snapped to drilling, and composited to 1m downhole. Small composites were merged throughout intersection. Four statistical domains were used to reflect the different orientations of mineralisation packages. A maximum search range from 18 - 220m (all directions and passes) was used in the mineralised packages
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	The modelling techniques were compared to a Mineral Resource was estimated in 2012 that reported all material greater than 1gpt and previous open pit production records.
	The assumptions made regarding recovery of by-products.	No assumptions of by product recovery are made.
	Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	No deleterious elements estimated in the model
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	Block size is 4m x 12m x 4m, sub-celled down to 0.5m x 1.5m x 0.5m to fit estimation domains. Average drill hole spacing is ~ 25-50m. Four search ellipses were used over four passes with a minimum of 15 samples to estimate per block (1st Pass) with a maximum of 32. Subsequent pasts used fewer numbers of samples (8) and maximum search range was increased (3rd Pass). Waste was assigned a valve of 0.005gpt
	Any assumptions behind modelling of selective mining units.	No assumptions made
	Any assumptions about correlation between variables.	No assumptions made
	Description of how the geological interpretation was used to control the resource estimates.	Mineralisation wireframes are created within the geological shapes based on drill core logs, mapping and grade. Low grades can form part of an ore wireframe
	Discussion of basis for using or not using grade cutting or capping.	Composite grades were cut to between 10 – 150gpt based on log distribution on individual domains.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Block grades were compared visually to drilling data. Validation is also through swath plots comparing composites to block model grades, along northings comparing OK to ID2 to nearest neighbour estimations. All compared favourable.

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated with natural moisture. Moisture content within the ore is expected to vary through the oxide to fresh. Minimal voids reported within all rock types. Water table at approximately 60m below surface
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	Reporting cut off = 1.0gpt
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	It is assumed Groundrush will be mined by either open pit and/or underground mining methods, and scoping level evaluations support the economics. Below the economic pit depth, grades are high enough to potentially be mined by underground methods. Assume nearby CTP mill will be refurbished for processing.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	No metallurgical holes were drilled as a part of the current drilling program. Metallurgical test work from previous owners and previous production data indicate that the mineralisation is free milling with high (90%+) gold recovery using standard CIL processing.
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	No environmental, permitting, legal, taxation, socio-economic, marketing or other relevant issues are known, that may affect the estimate.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	Bulk densities are based on 845 samples from 20 DD holes. Measurements were taken using the immersion method and related back to dominant rock code. This validated previously reported bulk density measurements and assumptions.
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.	Bulk density of the host rock and mineralisation is well covered and validates previous bulk density work.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Individual bulk densities are applied to geological units.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification is based on drill spacing and passes used to delineate Inferred and Indicated Mineral Resource.
	Whether appropriate account has been taken of all relevant factors (ie. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Confidence in the relative tonnage and grade is moderate to high based on interpretation continuity which will be confirmed by future infill drilling. Pre-NSR data was audited previously and is assumed to be reliable.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The result appropriately reflects the Competent Person(s)' view of the deposit
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	This Groundrush Mineral Resource has been internally and externally reviewed. A number of recommendations highlighted during the processes were implemented as required.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	This Groundrush Mineral Resource estimate is considered as robust and representative. The application of geostatistical methods has increased the confidence of the model and quantify the relative accuracy of the resource on a global scale. It relies on historical data being of similar standard as recent infill drilling. The relevant tonnages and grade are variable on a local scale.
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	This resource report relates to the Groundrush Gold Project where it is likely to have local variability. The global assessment is more of a reflection of the average tonnes and grade estimate.

Criteria	JORC Code explanation	Commentary
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Historic production from the Groundrush pit has been recorded as 4.2Mt @ 4.5gpt for 611koz. Comparison with current resource shows similar results (4.4Mt @ 4.2gpt for 600koz @ 0.8gpt cut-off). Certainly on a global scale this compares favourably.